



**US Army Corps
of Engineers®**
Nashville District

RIVERBANK PROTECTION

**Cumberland and Tennessee River Basins
Various Counties in Tennessee, Alabama,
Mississippi, & Kentucky**

Construction Specifications

Nashville, Tennessee

February 2004

TECHNICAL REQUIREMENTS

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GENERAL REQUIREMENTS

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SECTION 01000

GENERAL REQUIREMENTS

PART 1 GENERAL

1.1 GENERAL SCOPE OF WORK

Riverbank protection is defined by the scope of work specified in the contract documents and/or detailed in the contract drawings. The successful Contractor(s) shall be required to provide riverbank protection by furnishing all necessary technical expertise; planning; management; supervision; inspection; personnel; parts; tools; fuel; equipment; vehicles and transportation; materials and supplies; except as otherwise provided for herein, required to perform clearing, grubbing, excavation, geotextile placement and place quarried stone in the form of riprap or foreshore dikes from the river. The Contractor shall be required commence work within ten (10) days of the issuance of the Task Order, unless otherwise described in the Task Order, and provide the services in the performance period specified in the Task Order. For each award, the Contractor shall be prepared to receive and execute concurrent Task Orders at different locations within the boundaries of the respective award area specified below. All work shall be completed as specified, detailed and/or in strict accordance with all Terms, Conditions, General, Specific and Technical Provisions, contained herein or incorporated by reference. Incorporation by reference shall include any and all mandatory provisions required by the Federal Acquisition Regulation (FAR) whether it is referenced or not referenced, current at time of award.

1.2 TENNESSEE RIVER BASIN

The Tennessee River is divided into three reaches. Area One includes both streams (Cumberland and Tennessee Rivers) from the mouths to the Kentucky-Tennessee state border line. This area includes the Tennessee River, the Cumberland River, as well as, navigable channels adjacent to the main channels. Area Two includes the Tennessee River only and begins immediately below the state border line (River Mile 49.3) and extends to Guntersville Dam (River Mile 349.0) and covers the Tennessee River as well as navigable channels adjacent to the main channel. Area Three begins immediately upstream of Guntersville Dam and extends upstream to the Kentucky-Tennessee state border line, and covers the navigable Tennessee River as well as, navigable channels adjacent to the main channel. Refer to the Location Map in Drawing Number D-64/1.

1.3 CUMBERLAND RIVER BASIN

Similarly, the Cumberland River is divided into two reaches. Area One includes the both streams (Cumberland and Tennessee Rivers) from the mouths to the Kentucky state border line (River Mile 74.7). This area includes the Tennessee River, the Cumberland River, as well as,

navigable channels adjacent to the main channels. Area One is the same area as described above in Section 1.2. Area Four includes the Cumberland River only and begins immediately below the state border line (River Mile 74.7) and extends upstream to the Kentucky-Tennessee state border line (River Mile 385.6), and covers the navigable Cumberland River as well as, navigable channels adjacent to the main channel. The remaining area upstream from the state border line is not included in this contract. Refer to the Location Map in Drawing Number D-64/1.

1.4 CONSTRUCTION ACTIVITIES

The successful Contractor(s) will be issued Task Orders with scopes of work relating to the activities specified in this solicitation and itemized in the Bid Schedule. The Contractor will be required to perform a minimum of one site visit prior to the issuance of any Task Order or Request for Proposal to establish a Task Order. Performance periods to the Task Orders will be as specified in the Task Order or established through negotiations of any Requests for Proposals issued to the Contractor.

1.5 CONCURRENT WORK

The construction work required in this contract is in addition to the routine operation and maintenance performed by Government personnel and by other contracts. **The Government may, from time-to-time, perform work beyond the scope of this contract, within the geographic limits of this contract using its own personnel, volunteers or other contract personnel, and the Contractor shall be required to coordinate his efforts with such work.** The Contractor's work and responsibility shall include, but shall not be limited to: all planning, programming, administration and management necessary to assure that all work is conducted in accordance with the contract and all applicable laws, regulations, codes, or directives. The Contractor shall insure that all work meets or exceeds critical reliability rates or tolerances specified, or included in referenced documents. The Contractor shall perform all related Contract administrative services necessary to perform the work such as preparing Task Order proposals; quality control; financial control; maintenance of accurate and complete Contractor records and files; and for preparing and providing reports to the Government.

1.6 WATER QUALITY CERTIFICATIONS

The Government is responsible for obtaining the required Water Quality Certifications for each project covered by this job. The contractor shall comply with all conditions laid forth in the Water Quality Certification. Copies of these conditions will be provided with each Task Order.

1.7 ACCIDENT PREVENTION

The Special Contract Requirement entitled ACCIDENT PREVENTION addresses the contract requirement for the submission of the Safety Plan and the Activity Hazard Analysis. Attached

at the end of this section is ORNP-385-1-2 CONTRACTOR GUIDELINES for the preparation of the Safety Plan and the Activity Hazard Analysis.

The Contractor is required to comply with all interim changes to EM-385-1-1 which are posted in the Safety and Occupational Health Website prior to solicitation date. The webpage location where the interim changes are found is under the button entitled “Changes to EM”, located at: http://www.hq.usace.army.mil/soh/hqusace_soh.htm.

1.8 PAYMENT

No separate payment will be made for the work covered under this section. The costs thereof shall be included in the item to which the work pertains.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01000

SECTION 01312
QUALITY CONTROL SYSTEM (QCS)

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SECTION 01312

QUALITY CONTROL SYSTEM (QCS)

PART 1 GENERAL

1.1 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- Administration
- Finances
- Quality Control
- Submittal Monitoring
- Scheduling
- Import/Export of Data

1.1.1 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

1.1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Contract Section, "SUBMITTAL PROCEDURES", and Contract Section, "CONTRACTOR QUALITY CONTROL", which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

1.2 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on 3-1/2 inch high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

1.3 SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

1.3.1 Hardware

- IBM-compatible PC with 500 MHz Pentium or higher processor
- 128+ MB RAM for workstation / 256+ MB RAM for server
- 1 GB hard drive disk space for sole use by the QCS system
- 3 1/2 inch high-density floppy drive
- Compact disk (CD) Reader, 8x speed or higher
- SVGA or higher resolution monitor (1024 x 768, 256 colors)
- Mouse or other pointing devise
- Windows compatible printer (Laser printer must have 4+ MB of RAM)
- Connection to the Internet, minimum 56k modem

1.3.2 Software

- MS Windows 98, ME, NT, or 2000
- Word Processing software compatible with MS Word 97 or newer
- Latest version of : Netscape Navigator, Microsoft Internet Explorer, or other browser that supports HTML 4.0 or higher
- Electronic mail (E-mail), MAPI compatible

Virus protection software that is regularly upgraded with all issued manufacturer's updates

1.4 RELATED INFORMATION

1.4.1 QCS User Guide

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

1.4.2 Contractor Quality Control (CQC) Training

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

1.5 CONTRACT DATABASE

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by files attached to E-mail. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

1.6 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCS database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM). The QCS database typically shall include current data on the following items:

1.6.1 Administration

1.6.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

1.6.1.2 Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format via E-mail.

1.6.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

1.6.1.5 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.6.1.7 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

1.6.2 Finances

1.6.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

1.6.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be

updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

1.6.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in the contract section titled CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.6.3.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by the contract section titled CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the Government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

1.6.3.2 Deficiency Tracking

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

1.6.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

1.6.3.4 Accident/Safety Tracking

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 200.

1.6.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.6.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

1.6.4 Submittal Management

The Government will provide the initial submittal register, ENG Form 4288, SUBMITTAL REGISTER, in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities in accordance with Contract Clause "Schedules for Construction Contracts". This schedule

shall be input and maintained in the QCS database. The updated schedule data shall be included with each pay request submitted by the Contractor.

1.6.6 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data.

1.7 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

1.8 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

1.8.1 File Medium

The Contractor shall submit required data on 3-1/2 inch double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.8.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

1.8.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

1.9 MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

1.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

PART 2 (Not Applicable)

PART 3 (Not Applicable)

END OF SECTION 01312

SECTION 01330
SUBMITTAL PROCEDURES

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ATTACHED FORMS

ENG Form 4025	Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificates of Compliance (Submittal Form)	2 pages
ENG Form 4288	Submittal Register	2 pages

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SCOPE

This section covers procedures to be used in making submittals called for in other sections of the specifications.

1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.2.1 Government Approved

Governmental approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.2.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.3 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error that may exist, as the Contractor under the CQC requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After the Contracting Officer has approved submittals, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.4 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal.

If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

1.5 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

1.6 PAYMENT

No separate payment will be made for the work covered under this section. The costs thereof shall be included in the item to which the work pertains.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) representative and each item shall be stamped, signed, and dated by the CQC representative indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

3.2 SUBMITTAL REGISTER (ENG FORM 4288)

At the end of this section is one set of ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and

additional submittals may be required. Columns "d" thru "q" have been completed by the Government. The Contractor shall complete columns "a," "b," "c," and "r" thru "x" and return 2 completed copies to the Contracting Officer for approval within 30 calendar days after Notice to Proceed. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the contract. The submittal register and the progress schedules shall be coordinated. The Contractor shall submit updates of the submittal register every 90 days.

3.3 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

3.4 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) attached to this section shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

3.5 SUBMITTAL PROCEDURE

Submittals shall be made as follows:

3.5.1 Shop Drawings

3.5.1.1 General. Definitions of "Shop Drawings," and general requirements for submission and approval, are covered in Contract Clause entitled "Specifications and Drawings for Construction". The following are supplemental requirements for submission, approval, and use.

3.5.1.2 Submission. The Contractor shall submit to the Contracting Officer seven copies of all shop drawings of items requiring shop inspection and five copies of all other shop drawings as called for under the various headings of these specifications. The drawings shall be submitted using transmittal forms (ENG Form 4025) sample attached. A supply of these forms will be furnished to the Contractor without cost, upon request. These drawings shall be complete and detailed. The Contractor shall certify by signature on the ENG Form 4025 that he has reviewed the shop drawings in detail and that they are correct and in strict conformance with the contract

drawings and specifications except as may be otherwise explicitly stated. All proposed deviations or departures from the contract documents shall be noted on the transmittal ENG Form 4025 and the reasons for the deviations set forth in writing and such deviation annotated on the shop drawing. Each transmitted drawing or item shall be identified as having been reviewed and certified by being so stamped, signed and dated by the Contractor.

3.5.1.3 Approval. Submittals requiring Contracting Officer approval action are so designated in the contract documents and if approved, each copy of the drawings will be identified as having received such approval by being so stamped and dated. The Contractor shall make any corrections required by the Contracting Officer. If the Contractor considers any correction indicated on the drawings to constitute a change to the contract drawings or specifications, notice as required by under Contract Clause entitled CHANGES shall be given to the Contracting Officer. Six copies of all shop drawings of items requiring shop inspection and four copies of all other shop drawings will be retained by the Contracting Officer and one set will be returned to the Contractor. The approval of the drawings by the Contracting Officer shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory.

3.5.1.4 Information Purposes Only Submittals. All other submittals are considered to be for information purposes only and shall be subject to review action by the Contracting Officer. Any such, for information purposes only submittals found to contain errors or omissions shall be resubmitted as one requiring "approval" action. No adjustment for time or money will be allowed for corrections required as a result of noncompliance with plans and specifications.

3.5.1.5 Samples. All samples of materials submitted as required by these specifications shall be properly identified and labeled for ready identification.

3.5.2 Certificates of Compliance

Any Certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in two copies. Each certificate shall be signed by an official authorized to certify in behalf of the manufacturing company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if after tests are performed on selected samples, the material is found not to meet the specific requirements.

3.5.3 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the

reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

3.6 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

3.7 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Four copies of the submittal will be retained by the Contracting Officer and one copy of the submittal will be returned to the Contractor. If the Contractor needs more than one copy, additional copies shall be submitted.

3.8 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

3.9 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR
(Firm Name)

_____ Approved

_____ Approved with corrections as noted on submittal
data and/or attached sheets(s).

SIGNATURE _____

TITLE _____

DATE _____

END OF SECTION 01330

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE <i>(Read instruction on the reverse side prior to initiating this form)</i>	DATE	TRANSMITTAL NO.
--	------	-----------------

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO:	FROM:	CONTRACT NO.	CHECK ONE: <input type="checkbox"/> THIS IS A NEW TRANSMITTAL <input type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL _____
-----	-------	--------------	---

SPECIFICATION SEC. NO. (Cover only one section with each transmittal)	PROJECT TITLE AND LOCATION
---	----------------------------

ITEM NO.	DESCRIPTION OF ITEMS SUBMITTED <i>(Type size, model number/etc.)</i>	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. <i>(See Instruction no. 8)</i>	NO. OF COPIES	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE	VARIATION <i>(see instruction No. 6)</i>	FOR CE USE CODE
				SPEC. PARA. NO.	DRAWING SHEET NO.			
a.	b.	c.	d.	e.	f.	g.	h.	i.

REMARKS	I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated. <div>NAME AND SIGNATURE OF CONTRACTOR</div>
---------	--

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED (List by Item No.)	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE
--	--	------

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each transmittal shall be numbered consequently in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288 for each entry on this form.
4. Submittals requiring expeditious handling will be submitted on a separate form.
5. Separate transmittal forms will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the Contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

- | | |
|---|---|
| A - Approved as submitted | E - Disapproved (See attached) |
| B - Approved, except as noted on drawings. | F - Receipt acknowledged |
| C - Approved, except as noted on drawings
Refer to attached sheet resubmission required. | FX - Receipt acknowledged, does not comply
as noted with contract requirements |
| D - Will be returned by separate correspondence. | G - Other (<i>Specify</i>) |
10. Approval of items does not relieve the Contractor from complying with all the requirements of the contract plans and specifications.

SECTION 01354

ENVIRONMENTAL PROTECTION

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ATTACHED FORMS

CONTRACTOR CERTIFICATION STATEMENT	1 PG
SUBCONTRACTOR CERTIFICATION STATEMENT	1 PG

SECTION 01354

ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

1.1.1 Code of Federal Regulations (CFR)

40 CFR 261 Identification and Listing of Hazardous Waste

1.1.2 Engineering Manuals (EM)

EM 385-1-1 (1996, or most current publication) U.S. Army Corps of Engineers Safety and Health Requirements Manual

1.2 DEFINITIONS

Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances of plant or animal communities; or degrade the environment from an aesthetic, cultural or historic perspective. Environmental protection is the prevention/control of pollution and habitat disruption that may occur during construction. The control of environmental pollution and damage requires consideration of air, water, land, biological and cultural resources; and includes management of visual aesthetics, noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive materials; and other pollutants.

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

Environmental Certification Statement – GA
NPDES Notice of Intent Amendment (where applicable) – FIO
NPDES Inspection Records-FIO
Environmental Protection Plan – GA
Activity Environmental Analysis – GA

1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor shall comply with all applicable Federal, State, and local laws and regulations. The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction.

1.4.1 Protection of Features

This section supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. The Contractor shall prepare a list of features requiring protection under the provisions of the contract clause which are not specially identified on the drawings as environmental features requiring protection. The Contractor shall protect those environmental features, indicated specially on the drawings, in spite of interference which their preservation may cause to the Contractor's work under the contract.

1.4.2 Permits

1.4.2.1 This section supplements the Contractor's responsibility under the contract clause PERMITS AND RESPONSIBILITIES to the extent that the Government has already obtained environmental permits.

1.4.2.2 The Government will obtain necessary permits in accordance with Section 401 of the Clean Water Act. The Contractor shall be responsible for complying with the permit(s) and all conditions.

1.4.2.3 For projects that disturb more than one acre of land by clearing, grubbing, grading, or excavation, a Construction General Permit (CGP) for Storm Water Discharges will be obtained by the Government. This permit complies with National Pollutant Discharge Elimination System (NPDES) stormwater regulations. Under Kentucky, Tennessee, Alabama, and Mississippi regulations, the developer (Corps of Engineers) must apply for coverage under the CGP prior to beginning site construction. A Notice of Intent (NOI) is required for the States of Tennessee, Kentucky, and Mississippi; a Notice of Registration (NOR) is required for the State of Alabama. These forms will hereinafter be referred to as an NOI/NOR. The Government will provide a copy of the NOI/NOR and any resulting response from the applicable State to the Contractor with the Task Order. The Contractor and applicable subcontractors shall be considered co-permitees with the Corps such that they accept responsibility for fulfilling the requirements of the NPDES permit. An Environmental Certification Statement as discussed in Paragraph 1.5.1 shall be completed by all Contractors and subcontractors, including those added during the course of executing this Task Order. The Contractor/subcontractor shall not perform any work at the site until this Environmental Certification Statement has been filed with the Government.

1.4.2.4 The Contractor and Contracting Officer shall determine when stabilization of the site has been achieved and all storm water discharges associated with construction activities are eliminated. Once both agree that this has occurred, the Corps will file a Notice of Termination for the project with the State by Certified Mail. The Contractor will be notified when receipt of this document has been verified at which time the Contractor's NPDES permit responsibilities will be ended.

1.4.2.5 For work in the State of Tennessee, the following additional requirements must be fulfilled to be in compliance with the NPDES Construction General Permit. Since no work can be started prior to receipt of a Notice of Coverage (NOC) from the Tennessee Department of Environment and Conservation, Division of Water Pollution Control, the Contractor shall refrain from any on-site activities until such notice has been received from the State. It is anticipated that a NOC will have been received prior to issuance of the Government's Notice to Proceed to the Contractor but, should such not be the case, this requirement must be met. Also, the Contractor and any subcontractors that will be performing tasks that are regulated by the NPDES permit shall resubmit the NOI to the State of Tennessee after completing the "Certification for Contractors" portion. This document shall be filed by Certified Mail with a copy provided to the Contracting Officer. It shall be filed with the applicable State along with the documents described in Paragraphs 1.5.1 and 1.5.2. The Contractor/subcontractor shall not perform any work at the site until the amended NOI has been filed with the State and confirmation of receipt of this document has been received.

1.4.2.6 A TVA 26A Permit will be obtained by the Corps and/or Project Sponsor for projects in the Tennessee River watershed. A copy of this permit and its conditions will be provided to the Contractor with the Task Order. The contractor shall comply with the terms and conditions of this permit.

1.4.3 Special Environmental Requirements

The Contractor shall comply with the special environmental requirements included at the end of this section or the individual Task Orders. These special environmental requirements are an outgrowth of environmental commitments made by the Government during project development.

1.4.4 Water Quality Certifications

The Contractor shall comply with all the conditions laid forth in the Water Quality Certification for the appropriate state. Copies of conditions from the Water Quality Certifications will be provided with each Task Order.

1.4.5 Environmental Assessment of Contract Deviations

The Contract specifications have been prepared to comply with the special conditions and mitigation measures of an environmental nature which were established during the planning and development of this project. The Contractor is advised that deviations from the drawings or specifications (e.g., proposed alternate borrow areas, disposal areas, staging areas, alternate access routes, etc.) could result in the requirement for the Government to reanalyze the project from an environmental standpoint. Deviations from the construction methods and procedures indicated by the plans and specifications which may have an environmental impact will require an extended review, processing, and approval time by the Government. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

1.5 ENVIRONMENTAL PROTECTION PLAN

Within 30 calendar days after contract Award, the Contractor shall submit an Environmental Protection Plan for review and approval and no physical work at any site shall begin prior to its approval. The Government will consider an interim plan for the first 30 days of operations, if a Task Order is issued within 30 days of Award, and acceptance of the interim plan is conditional and predicated upon satisfactory performance during construction. The Contractor's Environmental Protection Plan shall detail the actions which the Contractor shall take to comply with all applicable Federal, State, and local laws and regulations concerning environmental protection and pollution control and abatement, as well as the additional specific requirements of this contract. The Contractor shall amend the approved Environmental Protection Plan if a Task Order requires more detail to the approved Environmental Protection Plan or, if the Contracting Officer determines that environmental protection requirements are not being met. The Environmental Protection Plan shall include, but not be limited to, the following:

1.5.1 Environmental Certification Statement

The Contractor shall provide a statement certifying that he is aware of the requirements of the project and/or Task Order Environmental Assessment (EA), Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control, and abatement that are applicable to his proposed operations. A sample is included at the end of this section. Any discrepancies found between the contract requirements and the EA(s) or these laws, regulations and permits shall be brought to the attention of the Contracting Officer. On projects requiring an NPDES Construction General Permit for Storm Water Discharges, a certification statement will be included with the Storm Water Pollution Prevention Plan (SWPPP) as described in Section 1.5.2.1. By signing the statement, the Contractor will become a co-permittee with the Corps for this project, confirms that he understands and will comply with terms and requirements of the Permit. Subcontractors whose activities may impact storm water quality shall also sign a certification statement.

1.5.2 Storm Water Pollution Prevention Plan

1.5.2.1 It shall be the Contractor's responsibility to prepare a site-specific plan detailing the proposed means by which erosion at the site will be controlled. For work in the States of Tennessee and Mississippi this plan shall be entitled "Storm Water Pollution Prevention Plan" (SWPPP); for work in the State of Alabama this plan shall be entitled "Construction Best Management Practices Plan" (CBMPP); and for work in the Commonwealth of Kentucky, the plan shall be called "Storm Water Best Management Plan" (SWBMP). This plan shall contain all information required by the NPDES Construction General Permit for Stormwater Discharges, including a site map showing all areas to be disturbed and best management practices (BMP) proposed for erosion and sediment control, stabilization, maintenance, and inspections. In addition to the actual project site, the SWPPP/CBMPP/SWBMP shall cover ancillary areas such as staging and disposal areas. The Plan shall also contain an Environmental Certification Statement as outlined above. The SWPPP/CBMPP/SWBMP shall be provided to the Government as an addendum to the Environmental Protection Plan and is subject to Government approval. No activity that will affect storm water runoff and erosion will be permitted until this document has been approved.

The Contracting Officer shall document approval of the SWPPP/CBMPP/SWBMP by adding his/her signature to the Environmental Certification Statement, a copy which will be returned to the Contractor. The Contractor shall provide a copy of the approved SWPPP/CBMPP/SWBMP to the applicable State office for NPDES permitting along with a copy of the signed Certification Statement. A copy of each shall also be retained at the construction site. Any delays caused by submitting a Plan with inadequate information will not be considered to be fault of the Government. If assistance is needed for developing the site specific SWPPP/CBMPP/SWBMP, the Contractor can contact the Government or visit the respected state agencies as listed in Paragraph 3.9.

1.5.2.2 Alabama's Department of Environmental Management (ADEM) requires that the CBMPP be prepared by a Qualified Credentialed Professional (QCP). Further explanation of QCP qualifications is available at ADEM's website listed in Paragraph 3.9. The Contractor is responsible for complying with the ADEM requirement. In addition, ADEM requires a form identifying the ADEM permit number and other information be posted at the construction site. A copy of this form is available from the Government or from ADEM's website. The Contractor is responsible for complying with this ADEM requirement.

1.5.3 Spill Control Plan

The Contractor shall include as part of the Storm Water Pollution Prevention Plan (SWPPP), Construction Best Management Practices Plan (CBMPP), and/or Storm Water Best Management Plan (SWBMP), a Spill Control Plan. The plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by the Emergency Response and Community Right-to-Know Act or regulated under State or local laws or

regulations. The Spill Control Plan supplements the requirements of EM 385-1-1 (1996, or most current publication). This plan shall include as a minimum:

- a. The name of the individual who will be responsible for implementing and supervising the containment and cleanup.
- b. Training requirements for Contractor's personnel and methods of accomplishing the training.
- c. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.
- d. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.
- e. The methods and procedures to be used for expeditious contaminant cleanup.
- f. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Contracting Officer in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity spill occurs. The plan shall contain a list of the required reporting channels and telephone numbers.

1.5.3 Recycling and Waste Minimization Plan

The Contractor shall submit a Recycling and Waste Minimization Plan as a part of the Environmental Protection Plan. The plan shall detail the Contractor's actions to comply with the following recycling and waste minimization requirements:

- a. The Contractor shall participate in State and local government sponsored recycling programs to reduce the volume of solid waste materials at the source.

1.5.4 Contaminant Prevention Plan

As a part of the Environmental Protection Plan, the Contractor shall prepare a contaminant prevention statement identifying potentially hazardous substances to be used on the job site and intended actions to prevent accidental or intentional introduction of such materials into the air, water, or ground. The Contractor shall detail provisions to be taken to meet Federal, State, and local laws and regulations regarding the storage and handling of these materials.

1.5.5 Environmental Monitoring

1.5.5.1 The Contractor shall include in the plan the details of environmental monitoring requirements under the laws and regulations (including NPDES) and a description of how this monitoring will be accomplished. The Contractor shall have qualified personnel to inspect disturbed areas of the construction site which have not been stabilized, structural control measures, drainage channels, discharge locations, and points where vehicles exit the site. Inspections are required at least once every seven calendar days and within 24 hours of the end of a storm event with rainfall that is 0.5 inches or greater. The Contractor shall install a precipitation gage on-site to monitor local precipitation and shall keep a daily log of precipitation amounts. Based on the inspections, all erosion control measures shall be maintained, repaired, or upgraded as appropriate to provide the required protection and to remain in compliance with permits. A report summarizing the scope of the inspection, name(s) and qualifications of the personnel making the inspection, date, major observation relating to implementation of the SWPPP/CBMPP/SWBMP plan and actions taken to repair or upgrade the controls shall be prepared by the Contractor. The Contractor shall also be responsible for any other periodic reporting required by the NPDES Construction General Permit of the applicable State. Original reports shall be submitted to the appropriate State office, two copies shall be provided to the Contracting Officer, and one copy shall be maintained by the Contractor until completion of the project. All records related to the NPDES Construction General Permit for Storm Water Discharges shall be retained by the Contractor for a period of three years. This includes SWPPP/CBMPP/SWBMP, inspection reports, and certification statements. The NPDES monitoring requirements shall remain in effect until a Notice of Termination has been filed by the Government as noted in paragraph 1.4.2.4.

1.5.5.2 Any action or inaction on the part of the Contractor or his subcontractors that results in the filing of a Notice of Violation against the Corps of Engineers by the State shall be the responsibility of the Contractor. It shall be the Contractor's responsibility to correct the conditions causing the Notice of Violation in accordance with the State's requirements. The Contractor shall be responsible for payment or reimbursement of any penalty or fee resulting from such a Notice of Violation. Should the State require work at the site to be delayed as a result of a Notice of Violation, any costs related thereto shall be the responsibility of the Contractor and no allowance will be made in the Contract schedule.

1.5.6 Work Area Plan/Site Drawings

The Contractor's Environmental Protection Plan shall include a work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. The work area plan should include traffic control and measures for marking the limits of use areas. Site drawings showing locations of any proposed marked material storage areas, staging areas, structures, or sanitary facilities shall be included.

1.5.7 List of Features to be Protected

The Contractor shall include in the Environmental Protection Plan lists of environmental features requiring protection which are developed under paragraphs 1.4.1 and 3.4 of this Section. The Contractor shall also discuss methods to protect resources needing protection, i.e., trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archeological and cultural resources.

1.6 ACTIVITY ENVIRONMENTAL ANALYSIS

Before starting any major phase of the work, an Activity Environmental Analysis shall be developed by the Contractor and reviewed for approval with the Government Representative at the Preparatory Phase meeting as described in Section 01451, Paragraph 3.6.1 of these specifications. A major phase of the work is defined as an operation involving a type of work not previously experienced which represents possible sources of adverse environmental effects. This analysis will evaluate potential environmental consequences of the activity and the techniques which will be utilized, to accomplish the work in an acceptable manner. This analysis includes: (1) the phase or activity of the work; (2) the potential environmental consequences of the activity; (3) precautionary actions to prevent adverse environmental impacts; (4) actions in the event of an environmental incident; and (5) the appropriate reference to Federal, State or local standards, regulations or laws.

1.7 PAYMENT

No separate payment or direct payment will be made for the cost of the work covered under this section. The costs therefore will be included in the bid items to which the work pertains.

PART 2 PRODUCTS (Not Applicable).

PART 3 EXECUTION

3.1 SPECIAL ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 Tree Protection

No ropes, cables, or guys shall be fastened to or attached to any tree(s) for anchorage unless specifically authorized by the Contracting Officer. Where such special use is permitted, the Contractor shall provide effective protection to prevent damage to the tree and other land and vegetative resources. Unless specifically authorized by the Contracting Officer, no construction equipment or materials shall be placed or used within the dripline of trees shown on the drawings to be saved. No excavation or fill shall be permitted within the dripline of trees to be saved except as shown on the drawings or specifically outlined in the Task Order.

3.1.2 U.S. Department of Agriculture (USDA) Quarantined Considerations

The Contractor shall thoroughly clean all construction equipment at the prior job site in a manner that ensures all residual soil is removed and that egg deposits from plant pests are not present. The Contractor shall consult with the USDA Plant Protection and Quarantine (USDA - PPQ) jurisdictional office for additional cleaning requirements that may be necessary.

3.1.3 Commercial Borrow

Prior to bringing commercially obtained borrow material onsite, the Contractor shall provide the Contracting Officer with the location of the pit or pits, the names of the owners and operators, and the types and estimated quantities of materials to be obtained from each source.

3.1.4 Disposal of Solid Wastes

Solid waste is rubbish, debris, waste materials, garbage, and other discarded solid materials (excluding clearing debris and hazardous waste as defined in following paragraphs). Solid waste shall be placed in containers and disposed on a regular schedule. All handling and disposal shall be conducted in such a way as to prevent spillage and contamination. The Contractor shall transport all solid waste off Government/Project property and dispose in compliance with Federal, State, and local requirements, or shall transport waste materials to the Government/Project landfill site shown on the contract drawings, as directed in the individual Task Orders. The Contractor shall comply with site procedures, Federal, State, and local laws and regulations pertaining to the use of the landfill area.

3.1.5 Clearing Debris

Clearing debris is trees, tree stumps, tree trimmings, shrubs, and leaves, vegetative matter, excavated natural materials (e.g., dirt, sand, and rock), and demolition products (e.g., brick, concrete, glass, and metals).

- a. The Contractor shall collect trees, tree stumps, tree trimmings, shrubs, leaves, and other vegetative matter and shall transport from Government/Project property for proper disposal in compliance with Federal, State, and local requirements. The Contractor shall segregate the matter where appropriate for proper disposal. Untreated and unpainted scrap lumber may be disposed of with this debris where appropriate.
- b. Excavated natural materials shall be transported from Government/Project property for proper disposal in compliance with Federal, State, and local requirements.

- c. Demolition products shall be transported from Government/Project property for proper disposal in compliance with Federal, State, and local requirements.

3.1.6 Hazardous Wastes

Hazardous wastes are hazardous substances as defined in 40 CFR 261, or as defined by applicable State and local regulations. Any special precautions to be taken regarding known hazardous wastes will be fully described in the Task Order to which it pertains, and the price for this work will be negotiated under the "Miscellaneous Site Specific Work" line item. If hazardous wastes are encountered during site construction, the Contractor shall stop work and immediately notify the Contracting Officer who will provide further direction. The Contractor shall be responsible for any hazardous wastes he generates and shall provide information as outlined in Section 1.5.4, Contaminant Prevention Plan.

3.1.7 Fuels and Lubricants

Fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants and waste oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with Federal, State, and local laws and regulations.

3.2 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

3.2.1 Known Historic, Archaeological, and Cultural Resources

Known archaeological sites within the Contractor's work area, if present, will be indicated or identified as per the issued Task Order. The Contractor shall install protection for these resources as shown on the drawings issued with the Task Order, Described in the Task Order, or otherwise presented, and shall be responsible for maintaining their condition and preservation of the site during the Task Order work.

3.2.2 Discovered Historic, Archaeological, and Cultural Resources

If during construction activities, items are observed that may have potential historic, archaeological, or cultural value, they shall be reported immediately to the Contracting Officer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. Items are defined as follows:

- a. Material remains of past human life such as pottery, basketry, bottles, weapon projectiles (including arrowheads, bullets, and shell casings), tools (metal, stone, bone, or shell), structures or portions of structures including foundations/piers, pit houses, rock paintings, rock carvings, intaglios (engraved or incised figures in

- stone), graves, human skeletal materials, bones of any type, or any portion or piece of any of the foregoing items.
- b. Unexpected objects, materials, or substances that are not a normal, routine component of the subsurface environment. For example, the normal subsurface consists of soil, sand, stone, rock, boulders, etc., but not bones or bone fragments of any type, bottles, bottle fragments, or other evidence of past human presence.
 - c. Unexpected evidence of past fill operations, dumping, or waste disposal activities including materials such as metal, wooden objects, glass, ceramics, etc., of an undetermined age. In the event that any of the foregoing items are encountered, the Contractor shall cease all activities that may result in impact to or the destruction of these resources and a sufficient buffer established to protect the resources. The Contractor shall prevent his employees from trespassing on, removing, or otherwise disturbing such resources. When located, information on the nature and location of archaeological resources **must remain confidential**. The penalties for knowingly violating or counseling, procuring, soliciting, or employing any other person to violate any of the Archaeological Resources Protection Act (ARPA) prohibitions include fines between \$10,000 and imprisonment from one to five years. In addition, rewards may be paid for information leading to convictions.

3.3 PROTECTION OF WATER RESOURCES

The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters.

3.3.1 Monitoring of Water Areas Affected by Construction Activities

The Contractor shall perform discharge monitoring, inspections, sampling and testing, reporting, and record keeping as set forth in the permit conditions which will be provided with the Task Order.

3.3.2 Wastewater

Wastewater directly derived from construction activities shall not be discharged before being treated to remove pollutants. All dewatering discharges must be adequately treated by filtering and/or settling before being released from the site.

3.3.3 Work Below Ordinary High Water

Procedural compliance with Section 404 and Section 401 of the Clean Water Act has been completed for all applicable work below ordinary high water elevation, as designed and set forth in these specifications and/or the individual Task Orders. Deviations from the work described in the Task Orders and the associated Environmental Assessment/Finding of No Significant Impact may require additional approval pursuant to Section 404/401.

3.3.4 Reduction of Exposure of Unprotected Erodible Soils.

Disturbed areas shall be protected from erosion as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. A NPDES Construction General Permit for Storm Water Discharges will be required when areas greater than one (1) acre of area are being disturbed. The Government will obtain the necessary NPDES permits and the Contractor will be a co-permittee with the Government.

3.3.5 Stabilization Practices (Seeding).

Vegetative stabilization practices are to be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after construction activity has ceased on all disturbed portions which will be inactive for more than 21 days. The exception to this requirement is the period from 1 December to 1 February, when seeding is not to be performed. Alternative protection methods such as mulching and/or structural control practices shall be provided during this period. Additional details on seeding specifications are listed in Section 02112, entitled CLEARING, GRUBBING, EXCAVATION, AND SEEDING.

3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish and wildlife. The Contractor shall be responsible for the protection of threatened and endangered animal and plant species including their habitat in accordance with Federal, State, Regional, and local laws and regulations.

3.5 PROTECTION OF AIR RESOURCES

Special management techniques as set out below shall be implemented to control air pollution by the construction activities. These techniques supplement the requirements of Federal, State, and local laws and regulations; and the safety requirements under this Contract. If any of the following techniques conflict with the requirements of Federal, State, or local laws or regulations, or safety requirements under this contract, then those requirements shall be followed in lieu of the following.

3.5.1 Particulates

Airborne particulates, including dust particles, from construction activities and processing and preparation of materials shall be controlled at all times, including weekends, holidays, and hours when work is not in progress. The Contractor shall maintain all excavations, stockpiles, haul

roads, permanent and temporary access roads, plant sites, disposal sites, borrow areas, and all other work areas free from airborne dust which would cause a hazard or nuisance.

3.6 INSPECTION

If the Contracting Officer notifies the Contractor in writing of any observed noncompliance with contract requirements or Federal, State, or local laws, regulations, or permits, the Contractor shall inform the Contracting Officer of proposed corrective action and take such action to correct the noncompliance. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action is taken. No time extensions will be granted or costs or damages allowed to the Contractor for any such suspension.

3.7 MAINTENANCE OF POLLUTION CONTROL FACILITIES

The Contractor shall maintain all constructed pollution control facilities and portable pollution control devices for the duration of the Contract or for the length of time construction activities create the particular pollutant. Refer to the Storm Water Pollution Prevention Plan (SWPPP) and State Erosion and Sediment Control Handbooks for best management practices, installation, and maintenance details.

3.8 TRAINING OF CONTRACTOR PERSONNEL

Contractor personnel shall be trained in environmental protection and pollution control. The Contractor will have completed Fundamentals of Erosion Control and Sediment Prevention as required by Tennessee Department of Environment and Conservation for working in the state of Tennessee and/or similar course offered for Mississippi, Alabama, and Kentucky.

Contractors working in Alabama will ensure necessary personnel meet requirements for Qualified Credentialed Professional as previously discussed in Section 1.5.2.2. The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel monthly. The training and meeting agenda shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, installation and care of facilities (vegetative covers, etc.), and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control. Anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants, shall also be discussed. Other items to be discussed shall include recognition and protection of archaeological sites and artifacts.

3.9 AGENCY CONTACT INFORMATION

The following agency contacts are offered to the Contractor as suggestions on where to obtain more information.

Kentucky-- <http://water.nr.state.ky.us/dow/dwkpdes.htm>;
Tennessee-- <http://www.state.tn.us/environment/permits/conststrm.php>;
Alabama--<http://www.adem.state.al.us/FieldOps/Permitting/Construction/Construction.htm>;
Mississippi-- http://www.deq.state.ms.us/MDEQ.nsf/page/epd_epdgeneral?OpenDocument

Information regarding water quality protection:

U. S. EPA – Region 4 Water Management Division Wetlands Section Mr. Ronald J. Mikulak, Wetlands Section Chief 61 Forsyth Street, South West Atlanta, GA 30303 Phone: 404-562-9351/Fax: 404-562-9343	
Tennessee Department of Environment and Conservation Division of Water Pollution Control Dan Eagar, Manager, 7th Floor, L & C Annex 401 Church Street Nashville, TN 37243 Phone: 615-532-0708/Fax: 615-532-0046	Alabama Department of Environmental Management Field Operations Division Mining and Nonpoint Source Section Tim Forester, Chief P.O. Box 301463 Montgomery, AL 36103-1463 Phone: 333-394-4311/Fax: 334-394-4326
Kentucky Department for Environmental Protection Division of Water Water Quality Certification Section John Dovak, Supervisor Frankfort Office Park 14 Reilly Road Frankfort, KY 40601 Phone: 502-564-3410	Mississippi State Department of Environmental Quality Office of Pollution Control, Surface Water Division Water Quality Management Branch Robert Seyfarth, Chief P.O. Box 10385 Jackson, MS 39289 Phone: 601-961-5160/Fax: 601-961-5376

Information regarding Construction General Permit for stormwater discharges:

U. S. EPA – Region 4 Water Management Division Surface Water Permits & Facilities Branch NPDES and Biosolids Permits Section Mr. Mike Mitchell, Coordinator 61 Forsyth Street, South West Atlanta, GA 30303-3104 Phone: 404-562-9303 Fax: 404-562-8692

Kentucky Department for Environmental Protection Division of Water Kentucky Pollutant Discharge Elimination System (KPDES) Branch Mr. R. Bruce Scott, P.E., Manager 14 Reilly Road Frankfort, Kentucky 40601 Phone: (502) 564-3410	Alabama Department of Environmental Management Permits and Services Division Mr. Russell Kelly, Chief Post Office Box 301463 Montgomery, Alabama 36130-1463 Phone: (334) 271-7714/Fax (334) 394-4326
Tennessee Department of Environment and Conservation Division of Water Pollution Control Permits Section Ms. Saya Qualls, Manager 6 th Floor, L&C Annex 401 Church Street Nashville, TN 37243-1534 Phone: 615-532-0625/Fax: 615-532-0046	Mississippi State Department of Environmental Quality Environmental Permit Division General Permits Branch Mr. Jim Morris, Chief P.O. Box 10385 2380 Hwy 80 West; Southport Center Jackson, MS 39289-0385 Phone: 601-961-5151

Information regarding erosion and sediment controls and best management practices:

Kentucky Natural Resources and Environmental Protection Cabinet, Kentucky Division of Conservation and Division of Water. Kentucky Best Management Practices for Construction Activities (August 1994). On the web at: <http://www.conservation.ky.gov/publications/construct1-8.pdf>. Write to Mr. Steve Coleman, Director, Kentucky Division of Conservation, 663 Teton Trail, Frankfort, KY 10601 (Phone: 502-564-3080).

Kentucky Natural Resources and Environmental Protection Cabinet, Kentucky Division of Conservation and Division of Water. Field Handbook, Erosion and Sediment Control on Construction Sites (1987). On the web at: <http://water.nr.state.ky.us/dow/pubs/erosion.pdf>. Write to Ms. Corinne Wells, Kentucky Division of Water, 14 Reilly Road, Frankfort, KY 40601 (Phone: 502-564-3410).

Tennessee Department of Environment and Conservation, Division of Water Pollution Control. Tennessee Erosion and Sediment Control Handbook. A Guide for Protecting of State Waters through the use of Best Management Practices during Land Disturbing Practices (March 2002). On the web at: http://www.state.tn.us/environment/wpc/sed_ero_controlhandbook/. Write to Mr. Robert Haley, P.E., Tennessee Department of Environment and Conservation, Division of Water Pollution Control, 6th Floor L&C Annex, 401 Church Street, Nashville, TN 37243-1534 (Phone: 615-532-0625).

Alabama Soil and Water Conservation Committee, Montgomery Alabama. Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas (July 2002). On the web at:

http://www.swcc.state.al.us/pdf/HANDBOOK_EROSIONCTRL.pdf. Write to the State of Alabama, Soil and Water Conservation Committee, RSA Union Building, 100 North Union Street, Suite 334, P.O. Box 304800, Montgomery, AL 36130-4800, (Phone: 334-242-2620; Fax: 334-242-0551).

Mississippi Forestry Commission. Mississippi's BMPs, Best Management Practices for Forestry in Mississippi (March 2000). On the web at: <http://www.mfc.state.ms.us/pdf/bmp2000.pdf>.

Write to the Mississippi Forestry Commission, 301 N. Lamar, Suite 300, Jackson, MS 39201 (Phone: 601-359-1386).

Center for Sustainable Design, Mississippi State University and the Watershed Science Institute of the Natural Resources Conservation Service (NRCS). Compendium 2003. the web at:

<http://www.wcc.nrcs.usda.gov/watershed/UrbanBMPs/index.html>. Document is available in both hard copy and compact disk format.

END OF SECTION 01354

CONTRACTOR CERTIFICATION STATEMENT:

I certify that as Contractor I am aware of the requirements of the project and/or Delivery/Task Order Environmental Assessment (EA), and Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control, and abatement applicable to proposed operations carried out through this contract. Any discrepancies found between contract requirements and EA(s) or these laws, regulations and permits shall be brought to the attention of the Contracting Officer.

I also certify that as Contractor I am co-permittee with the US Army Corps of Engineers for projects undertaken by this contract. I understand and will comply with terms and requirements of the NPDES Construction General Permit for Storm Water Discharges and associated site-specific Plan (reference Section 1.5) including best management practices (BMP) for erosion control.

I understand it is my responsibility as Contractor for each Delivery/Task Order to prepare a site-specific plan detailing the proposed means by which erosion at the site will be controlled. This plan shall contain all information required for NPDES Construction General Permit, and shall be provided to the Government for approval prior to starting construction. Upon approval I shall provide a copy of the approved plan to the applicable State office for NPDES permitting along with a copy of the signed Certification Statement. A copy of each shall be retained at the construction site.

I understand any delays caused by submitting a Plan with inadequate information are not the fault of the Government.

For work in Alabama, I certify requirements for Qualified Credentialed Professionals (QCP) shall be met.

Engineer
CELRN-EC-
Nashville, TN 37214
(615)

Designated Representative
Company XX (prime contractor)
town, state, USA
()

Administrative Contracting Officer

SUBCONTRACTOR CERTIFICATION STATEMENT:

I certify that as a subcontractor whose activities may impact storm water quality, I have reviewed, am aware of, and will abide by all necessary environmental requirements, such as the project and/or Delivery/Task Order Environmental Assessment (EA), and Federal, State, and local laws, regulations, and permits (including the NPDES general permit with corresponding site-specific BMP) concerning environmental protection, pollution control, and abatement applicable to proposed operations of this project.

I understand, as subcontractor, I shall not begin work at the site until the Government acknowledges that this Certification Statement is in order.

Designated Representative
Prime Contractor Company

Designated Representative
Subcontractor Company

SECTION 01451

CONTRACTOR QUALITY CONTROL

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ATTACHED FORMS

CONTRACTOR'S QUALITY CONTROL REPORT FORM
DEFICIENCY LIST FORM

SECTION 01451

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

1.1.1 American Society for Testing and Materials (ASTM)

ASTM D 3740	(1994a) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(1995b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause entitled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall

mean the individual with the responsibility for the overall management of the project including quality and production.

3.2 QUALITY CONTROL PLAN

3.2.1 General

The Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 60 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters will also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.

- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)
- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.
- h. Reporting procedures, including proposed reporting formats.
- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks and has separate control requirements. It could be identified by different trades or disciplines, or it could be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall

become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 General

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, or a graduate of construction management, with a minimum of 3 years construction experience on construction similar to this contract, or a technician with 5 yrs.. construction quality management experience. This CQC System Manager shall be on the site at all times during construction and will be employed by the prime Contractor. The CQC System Manager may also have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager will be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate will be the same as for the designated CQC System Manager.

3.4.3 CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization, as needed, specialized personnel to assist the CQC System Manager for the following areas: electrical, mechanical, civil, structural, environmental, architectural, materials technician, and submittals clerk. These individuals shall: be employed by the prime contractor, unless waived in writing by the contracting officer; be responsible only to the CQC system manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan.

Experience Matrix

<u>Area</u>	<u>Qualifications</u>
a. Civil	Graduate Civil Engineer with 2 years experience in the type of work being performed on this project or technician with 5 yrs. related experience
b. Architectural	Graduate Architect with 2 yrs. experience or person with 5 yrs. related experience
c. Environmental	Graduate Environmental Engineer with 3 yrs. experience
d. Submittals	Submittal Clerk with 1 yr. experience
e. Concrete, Pavements and Soils	Materials Technician with 2 yrs. experience for the appropriate area

3.4.4 Additional Requirement

In addition to the above experience and education requirements, and within ninety (90) days of his appointment, the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors" or shall have a certificate of this training within the last 5 years.

3.4.5 Organizational Changes

The Contractor shall maintain his CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS

Submittals shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 48 hours in advance of beginning any of the required actions of the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the project superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

- l. A review of Activity Environmental Analysis as described in Section 01354, Paragraph 1.6.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility will be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory

technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of \$1,000.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3 On-Site Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials will be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Waterways Experiment Station, f.o.b., at the following address:

Waterways Experiment Station
CE WES-GS
3909 Halls Ferry Road
Vicksburg, MS 39180

Coordination for each specific test, exact delivery location, and dates will be made through the Area Office.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Special Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the CQC System Manager shall conduct an inspection of the work and develop a punch list of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the

Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date(s) covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every seven days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.9.1 As-Built Drawings

During the progress of the job, the Contractor shall keep a careful record at the jobsite of all changes and corrections from the layouts shown on the drawings. The Contractor shall enter such changes and corrections on as-built drawings promptly but in no case later than on a weekly basis. If the Contractor fails to maintain the as-built drawings as required herein, the Contracting Officer will deduct from the monthly progress payment, an amount representing the estimated monthly cost of maintaining the as-built drawings. Upon completion, the Contractor shall furnish to the Contracting Officer two (2) completed sets of as-built drawings. These sets shall be a reproducible. These drawings shall show all changes and revisions made up to the time the work is completed and accepted and shall reflect any changes, alterations adjustments or modifications resulting from approved shop drawings. Changes must be reflected on all sheets

affected by the change. Changes shall include marking the as-built drawings to reflect structural details, foundation layouts, equipment, sizes, and other extensions of design, that could not be shown in the original contract documents because the exact details were not known until after the time of approved shop drawings. All shop drawings such as erection and fire protection, which are used by the Contractor to show the as-built condition, shall be provided on 3 mil single matte mylar. Final payment with respect to separately priced facilities or the contract as a whole, will be withheld until proper as-built drawings have been furnished to and accepted by the Contracting Officer.

CADD Format. As an option, the Contractor may maintain and provide the required as-built drawings in a Microstation format acceptable to the Contracting Officer, in lieu of the above described marked-up printed set.

- a. The as-built drawings shall indicate, in addition to all changes and corrections, the actual location, kinds and sizes of all sub-surface utility lines and monitoring devices. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the as-built drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.
- b. For projects where portions of construction are to be occupied or activated prior to overall project completion, including portions of utility systems, as-built drawings for those portions of the facility being occupied or activated shall be supplied at that time. This same as-built information previously furnished must also be shown on the final set of as-built drawings only in cases where it is required to show portions of the project not previously occupied or activated.

3.10 PROGRESS AND WORK PHOTOGRAPHS

The Contractor shall, during the progress of the project, furnish the Government progress photographs to depict progress and work conditions of the site construction. The work photographs shall be taken at project initiation, at monthly intervals thereafter, and after completion of work.

3.10.1 Photographs

Photographs depicting progress shall be delivered to the Government along with each request for payment. Photographs depicting specific work, as specified above, shall be submitted with the monthly request for payment in the month which the work took place. The progress photographs shall be taken from not less than two positions for each work area. They shall show, inasmuch as practical, work accomplished since the previous photographs. Project initiation photographs shall

be taken from the same location and angle as the project completion photographs. The photographs shall be high-resolution digital images saved as JPEG (Joint Photographic Experts Group) files, or other acceptable compressed format. The resolution shall be no less than 1024 x 768 pixels. Each photograph shall be identified by the date and number of exposure, plus a brief description of the work photographed. The photographs shall be furnished to the Government in a 3-1/2" HD floppy diskette, or other acceptable media, by the time stipulated above. No separate payment shall be made for these services and all costs in connection thereto shall be considered incidental to costs of the representative work area.

3.10.2 Delinquent Photographs

For each month the Contractor fails to submit progress and work photographs, the Contracting Officer may retain \$200.00 or 10 percent of the progress payment, whichever is greater, in accordance with Contract Clause PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS. Also, in accordance with Clause INSPECTION OF CONSTRUCTION, the Contracting Officer may, by contract or otherwise, have the progress and work photographs taken and modify the contract amount to reflect the charges for these photographs.

3.11 SAMPLE FORMS

Sample forms are enclosed at the end of this section.

3.12 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the worksite, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

3.13 DEFICIENCY TRACKING SYSTEM

The Contractor shall maintain a cumulative list of deficiencies identified for the duration of the project. Deficiencies to be listed include those identified by the Contractor's Quality Control observations, test failures, Government oral observations and Notifications of Noncompliance. As a minimum, the list shall include the information contained in the Deficiency List attached at the end of this section. A current copy of the list shall be maintained at the project site at all times and shall be made available for review by Government personnel. Copies of updated listings shall be submitted to the CO at least every 30 days. Payment will be withheld for deficient work until it has been corrected.

END OF SECTION 01451

CONTRACTOR'S QUALITY CONTROL REPORT (QCR) (ER 1180-1-6)		DATE:	REPORT NO.
CONTRACT NUMBER AND NAME OF CONTRACTOR:		DESCRIPTION AND LOCATION OF THE WORK:	
WEATHER CLASSIFICATION: CLASS A No interruptions of any kind from weather conditions occurring on this or previous shifts. CLASS B Weather occurred during this shift that caused a complete stoppage of all work. CLASS C Weather occurred during this shift that caused a partial stoppage of work. CLASS D Weather overhead excellent or suitable during shift. Work completely stopped due to previous adverse weather. CLASS E Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse weather. OTHER Explain.		CLASSIFICATION: CLASS _____ TEMPERATURE: MAX _____ MIN _____ PRECIPITATION: INCHES _____	
CONTRACTOR/SUBCONTRACTORS AND AREA OF RESPONSIBILITY FOR WORK PERFORMED TODAY: (Attach list of items of equipment either idle or working as appropriate.)			
a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____			
1. WORK PERFORMED TODAY: (Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in Table above.)			
2. TYPE AND RESULTS OF INSPECTION: (Indicate whether: P-Preparatory, I-Initial, or F-Follow-up and include satisfactory work completed or deficiencies with action to be taken.)			
3. TESTS REQUIRED BY PLANS AND/OR SPECIFICATIONS PERFORMED AND RESULTS OF TESTS:			

<p>4. VERBAL INSTRUCTIONS RECEIVED:(List any instruction given by the Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)</p>	
<p>5. REMARKS: Cover any conflicts in plans, specifications or instructions: acceptability of incoming materials; offsite surveillance activities; progress of work, delays, causes and extent thereof; days of no work with reasons for same.)</p>	
<p>6. SAFETY: Include any infractions of approved safety plan, safety manual or instruction from Government personnel. Specify corrective action taken.)</p>	
	<p>SAFETY INSPECTOR</p>
<p>7. CONTRACTOR'S CERTIFICATION: I certify that the above report is complete and correct and that all material and equipment used, work performed and tests conducted during this reporting period were in strict compliance with the contract plans and specifications except as noted above.</p>	
<p>CONTRACTOR QUALITY CONTROL SYSTEM MANAGER</p>	

DEFICIENCY LIST

CONTRACT NO.: _____

PROJECT: _____

DEFIC. NO.	DESCRIPTION	DEFICIENCY		CORRECTION		COMMENTS
		DATE OBSERVED	CQC REPORT NO.	DATE CORRECTED	CQC REPORT NO.	

SECTION 02112
CLEARING, GRUBBING, EXCAVATION AND SEEDING

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SECTION 02112

CLEARING, GRUBBING, EXCAVATION, AND SEEDING

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing plant, labor, materials, supplies, and equipment for performing all operations necessary for clearing, grubbing, excavation, seeding and disposal of materials, complete, as specified herein and as shown on the contract documents.

1.2 REFERENCES

1.2.1 Work in Tennessee, Kentucky, Alabama, and Mississippi

The materials, equipment, and workmanship shall be in accordance with each States' applicable portions for road and bridge construction manuals listed below unless otherwise noted in these specifications. These State manuals are herein referred to as "Standard Specifications," except as otherwise specified. In the Standard Specifications change the words as listed in the State publications to the following. Note, Kentucky changes are noted in parentheses.

State (for Kentucky only: Commonwealth)
Department (for Kentucky only: Cabinet)
Commissioner
Engineer

to Government
to Corps of Engineers
to Contracting Officer
to Contracting Officer

U.S. Department of Transportation,
Federal Highway Administration,
Standard Specifications For Construction
of Roads and Bridges on Federal Highway Projects, FP-96, 1996.
Division 200 – Earthwork; Section 201- Clearing and Grubbing

<http://www.efl.fha.dot.gov/design/design.htm>

**Federal Highway Administration
Eastern Federal Lands Highway Division
21400 Ridgetop Circle
Sterling, VA 20166-6511**

1-800-892-8776

<p>Tennessee Department of Transportation, Bureau of Highways, <u>Standard Specifications for Road and Bridge Construction, 1995</u>, and supplemental specifications.</p> <p>http://www.tdot.state.tn.us/construction/specbook.htm</p> <p>Tennessee Department of Transportation James K. Polk Building, Suite 700 505 Deaderick Street Nashville, TN 37243-0349</p> <p>(615) 741-2848</p>	<p>Kentucky Transportation Cabinet, Department of Highways, <u>Standard Specifications for Road and Bridge Construction, Edition of 2000</u>, and the Supplemental Specifications to the Standard Specifications for Road and Bridge Construction, 1998</p> <p>http://www.kytc.state.kv.us/construction/Spec2000/pdffiles.html</p> <p>The Kentucky Transportation Cabinet Division of Construction, Room 408 501 High Street Frankfort, KY 40622</p> <p>(502) 564-4780</p>
<p>Mississippi Department of Transportation, <u>MDOT Standard Specifications for Road & Bridge Construction, 1990, and 1996</u>.</p> <p>http://www.gomdot.com/business/specs.htm</p> <p>Mississippi Department of Transportation Construction Division 73-01 Box 1850 Jackson, MS 39215-1850</p> <p>(601)359-7322)</p>	<p>Alabama Department of Transportation, <u>Standard Specifications for Highway Construction, 2002 Edition</u>.</p> <p>http://www.dot.state.al.us/Bureau/construction/index.htm</p> <p>Alabama Department of Transportation Construction Bureau 1409 Coliseum Blvd. Montgomery, Alabama</p> <p>(334) 242-6208</p>

1.3 SUBMITTALS

Submit the following in accordance with Section 01330 SUBMITTAL PROCEDURES.

1.3.1 Construction and Site Safety Plans

After award of the contract, the Contractor shall, in writing, submit a Construction Plan to the Contracting Officer detailing the activities to take place during construction. The plan shall include activities in the investigation of historical, archaeological, and cultural resources; those operations which will be performed from the floating plant and barges; and compaction requirements of fill materials. After issuance of a task order, this plan may be required to be amended to depict possible operations which will be performed on land; requirements for saving trees at the top of the bank and any other trees which can be salvaged during construction and plans for temporary construction access or construction of working platforms. Since site specific work will be as per the issued Task Orders, the Government will require that a Site Specific Safety Plan be submitted for approval at the time of the Preconstruction meeting for each Task Order. The Contractor shall not begin work until approval of the Construction Plan and Site Specific Safety Plan have been made.

1.4 MEASUREMENT AND PAYMENT

1.4.1 Initial Surveys

No separate payment shall be made for survey work as described in Paragraph 1.8.2 of Contract Technical Specification Section 02275.

1.4.2 Clearing and Grubbing

Measurement shall be by the acre. Payment shall be made at the contract unit price per acre for "Clearing and Grubbing - Minimum", "Clearing and Grubbing - Moderate", "Clearing and Grubbing - Dense". "Clearing and Grubbing - Minimum" is defined as minimum growth such as bushes, few trees and a possibility of some large rocks. "Clearing and Grubbing - Moderate" is defined as moderate growth with more trees with a caliper greater than 4 inches than bushes (approximately 30 to 60% of the site is trees), and/or large rocks exist on the site. "Clearing and Grubbing - Dense" is defined as dense growth with more than 60% covered by trees.

1.4.3 Excavation, Unclassified

Measurement shall be by the number of cubic yards of material acceptably excavated and redistributed or removed from the site as directed in the field or as specified herein, measured in original position, and computed by the average end-area method. This measurement does not include any yardage excavated without authorization beyond the indicated slope lines or the yardage of any material which is to be used for purposes other than those directed. The final cross-sectional area measured for each station or fraction thereof, shall not include water, mud, or muck which cannot be drained. No distinction shall be made between materials which are excavated in the dry or wet. Payment shall be made at the contract unit price per cubic yard for "Unclassified Excavation", which price shall constitute full compensation for all plant, equipment, tools, labor, materials, and supplies necessary to complete the work.

1.4.4 Disposal

No separate payment shall be made for disposal of cleared, grubbed, and excavated materials or any other site debris. All costs associated with disposal shall be considered incidental to the costs of clearing and grubbing and/or excavation.

1.4.5 Seeding

1.4.5.1 Temporary Seeding

Measurement shall be by the unit MSF (1,000 square feet). Payment shall be made at the contract unit price per unit for "Temporary Seeding." All associated costs shall be considered incidental to temporary seeding including mulch.

1.4.5.2 Permanent Seeding

Measurement shall be by the unit MSF (1,000 square feet). Payment shall be made at the contract unit price per unit for "Permanent Seeding." All associated costs shall be considered incidental to permanent seeding including fertilizer, mulch, and water.

1.4.6 Floating Plant

Measurement shall be by the unit "each" for delivery, set-up and removal of the floating plant operation for the duration of a Task Order. Payment shall be made at the contract unit price for:

"Floating Plant Assembly/ Disassembly - Area 1",

"Floating Plant Assembly/ Disassembly - Area 2",

"Floating Plant Assembly/ Disassembly - Area 3", or

"Floating Plant Assembly/ Disassembly - Area 4."

Payment shall be inclusive of all labor, materials and equipment to perform each separate bid item.

1.4.7 Historical, Archaeological, And Cultural Resources.

Measurement shall be by the hour of performing duties on site by the Archaeological team.

Payment shall be made at the contract unit price per hour for "Archaeologist."

PART 2 PRODUCTS

2.1 SEEDING FOR RESTORATION OF LANDSCAPE

2.1.1 Seed

Any and all seed used shall meet the requirements of the Tennessee Department of Agriculture and no "Below Standard" seed will be accepted. Grass seed furnished shall be packed in new bags or bags that are sound and not mended and shall be labeled in accordance with USDA rules and regulations under the Federal Seed Act in effect on the date of invitation for bids. Seed which has become wet, moldy, or otherwise damaged in transit or in storage will not be acceptable.

2.1.2 Permanent Seeding

The Contractor shall use, at his option, either of the following seed mixtures:

- a. Habitat management Native Grass and Wildflower Mixture 1A, as produced by:
Sharp Brothers Seed Company of Missouri, Inc., or approved equal
396 S.W. Davis St. – Ladue
Clinton, MO 64735-9058
1-800-451-3779 or (660) 885-7551

<u>Seed Mix</u>	<u>Seed Mix Contents</u>	<u>Seeding Dates</u>
Mixture 1A	Big Bluestem, 1.8 lbs PLS Indiangrass, 2.0 lbs PLS Little Bluestem, 1.5 lbs PLS Sideoats Gamma, 0.5 lbs PLS <u>Switchgrass, 0.2 lbs PLS</u> Total 6.0 lbs PLS (Pure Live Seed) plus wildflowers, 0.25 lbs	15 March - 30 May

- b. "Prairie Mix," or approved equal, as packaged by:
Wildlife Nurseries
Oshkosh, Wisconsin

<u>Seed Mix</u>	<u>Seed Mix Contents</u>	<u>Seeding Dates</u>
Prairie Mix	Haskeil Sideoats Alamo Switchgrass Kow Big Bluestem Cheyenne Indiangrass Cimarron Little Bluestem Sand Lovegrass Plains Buffalograss Misc. additional wildflowers	15 March - 30 May

Seed shall be uniformly mixed and shipped to the job site in bags fully labeled stating the seed mixture, name and address of the supplier, net weight and contents. All seed shall be a minimum of 95 percent pure with a minimum germination of 65 percent. No seed shall contain more than five percent weed seeds by weight. No seed shall contain more than 18 noxious weed seeds or bulblets per ounce. At the discretion of the Contracting Officer, samples of seed may be taken for compliance with these specifications.

2.1.3 Temporary Seeding

Only rye grain (*secale cereale*) or annual ryegrass (*lolium multiflorum*) seed shall be used for temporary seeding. Seed shall be uniformly mixed and shipped to the job site in bags fully labeled stating the seed species, name and address of the supplier, net weight and contents. All seed shall be a minimum of 95 percent pure with a minimum germination of 65 percent. No seed shall contain more than five percent weed seeds by weight. No seed shall contain more than 18 noxious weed seeds or bulblets per ounce. At the discretion of the Contracting Officer, samples of seed may be taken for compliance with these specifications

2.2 GRANULAR FERTILIZER

Fertilizer for permanent seeding shall be a commercial grade fertilizer, uniform in composition, granular, free-flowing, and suitable for application with approved equipment. The fertilizer shall be contained in bags fully labeled stating the net weight, brand and grade, guaranteed analysis, and name and address of the manufacturer. Fertilizer shall comply with local, state, and Federal fertilizer laws. Composition percentages by weight shall be as follows:

Nitrogen	10 percent
Available Phosphoric Acid	10 percent
Soluble Potash	10 percent

2.3 SURFACE EROSION CONTROL BLANKET

Surface Erosion Control Blanket shall be a machine produced mat of wood excelsior formed from a web of interlocking wood fibers; covered on one side with either knitted straw blanket-like mat construction; covered with biodegradable plastic mesh; or interwoven biodegradable thread, plastic netting, or twisted kraft paper cord netting.

2.4 VEGETATIVE MULCH

Material for temporary and permanent seed mulching shall be air dried baled straw reasonably free of noxious weeds and seeds or other materials detrimental to plant growth. Straw shall be stalks with an average length of 10-inches and made of rye, oats, wheat, or other approved grain crops. Mulch materials shall be bright in color and shall not be musty, moldy, or in an advanced stage of decomposition.

2.5 WATER

Water shall be fresh and free of injurious amounts of oil, acid, alkali, salts, or other materials harmful to the growth of grass. It shall be subject to the approval of the Contracting Officer prior to use.

PART 3 EXECUTION

3.1 CLEARING AND GRUBBING

All areas on which stone protection is to be constructed shall be cleared of trees, logs, stumps, underbrush, rubbish, structures and other perishable materials. Clearing and grubbing shall be performed from the top of the slope to the riverward limit of the slope protection, within the construction work limits. Trees to remain shall be limited to the survivable trees, as determined by the Contracting Officer, located at the top of the bank whenever possible. Measures to be taken by the Contractor for the protection of trees shall be submitted to the Contracting Officer before the Contractor begins clearing and grubbing operations. Clearing for the Contractors access, facilities, and project site areas shall be kept to a minimum unless otherwise approved by the Contracting Officer.

3.1.1 Historical, Archaeological, And Cultural Resources

3.1.1.1 Potential and/or Known Historic, Archaeological, and Cultural Resources

The Contractor's work area(s) may include the general location of property listed on the National Register of Historic Places or have the potential to produce historic, cultural or archaeological resources. The historic importance of any known site(s) will be stated in the Task Order as well as the number of hours an archaeologist will be required to be on site during all construction

activities. All directions as to the handling of resources discovered during the execution of a Task Order shall be at the Direction of the Contracting Officer.

3.1.1.2 Archaeological Monitoring

The Contractor shall develop, and if so directed, implement a program of archaeological monitoring prior to execution of a Task Order, during clearing and grubbing activities, during project construction excavation activities or as otherwise stated in the Task Order. The Contractor may also have to provide archaeological services if the discovery of items as defined in Section 01354, paragraph 3.2.2 are made during the execution of the Task Order. The Contractor will ensure that monitoring of project construction is conducted by an archaeologist meeting the *Secretary of the Interior's Professional Qualifications Standards* (48 FR 44738-9) and the standards defined and required by the relevant State Historic Preservation Officer (SHPO) are reflected in a resume of the archeologist being submitted in the construction plan specified in paragraph 1.3.1 of this Section for this contract. Archaeological monitoring will include the recording and reporting of major features or artifact concentrations suspected and/or uncovered in accordance with a monitoring plan. A monitoring plan will be developed and approved in consultation with the Corps of Engineers and the State Historic Preservation Officer (SHPO) prior to initiation of construction. The plan will also define sufficient time and/or construction schedule contingencies, such as moving to an alternative construction area, which will allow for limited stoppage of construction and implementation of appropriate archaeological recording/recovery techniques if and when significant concentrations of potentially important archaeological materials are found.

3.1.2 Clearing and Grubbing Restrictions

The Contractor's clearing and grubbing operation shall be performed as to minimize and control erosion of the bank materials ahead of the geotextile and stone placing operations. Extensive clearing and grubbing far in advance of the stone protection operations will render the riverbank vulnerable to erosion from rainfall, normal runoff, and river level fluctuations. Generally, clearing trees and underbrush by cutting shall be less restricted than if tree roots are removed by grubbing. Stumps and tree roots help prevent erosion until the grubbing operation is performed. The Contractor shall submit for approval a work plan and construction sequence defining the extent of clearing and grubbing in advance of stone placement, and an anticipated rate of progress with the Environmental Protection Plan required in Section 01354, paragraph 1.5. Factors such as rainfall and river stage forecasts will be considered by the Contracting Officer in making approvals. Approval of the plan shall be subject to the Contracting Officer's discretion. Clearing and grubbing operations shall not extend more than 100 yards ahead of nor impede the placement of geotextile and stone protection.

3.2 EXCAVATION

3.2.1 General

The Contractor shall excavate materials in the area to receive stone protection. Excavation shall include the removal of any obstruction in the banks and for shaping the banks to receive stone protection. Whenever possible, shaping shall be done in such a way so as to minimize stone

quantities. All loose, unstable, and organic materials shall be removed. Adequate drainage and sedimentation control of the construction area shall be maintained at all times. Excavated materials may be temporarily stockpiled for use as fill. Erosion control measures shall be in accordance with Section 01354, paragraph 1.5. No additional payment shall be made, by the Government, for temporary stockpiling.

3.2.1.1 Initial Surveys

In order to define the original ground conditions, the Contractor shall survey the area to receive stone protection after clearing and grubbing has been completed. This initial survey shall provide the basis by which the Contracting Officer determines and directs the extent of excavation and grading required. The stone protection templates shown in the Contract Documents or in the Task Orders generally define the criteria that shall be used by the Contracting Officer to determine the extent of excavation needed at each section. No excavation shall be performed prior to the Contracting Officer making this determination. Another full survey of the site shall be performed after excavation and grading is complete. The volume of excavated material shall be determined by the average end area method based on these two surveys. These surveys shall be performed and submitted in accordance with the requirements outlined in Paragraph 1.4 of Contract Technical Specification Section 02275.

3.2.2 Classification of Excavation

All excavation shall be classified as unclassified.

3.2.3 Unclassified and Finished Excavation

All disturbed and unstable material shall be excavated as directed by the Contracting Officer. The finished surfaces of excavated areas shall be reasonably smooth and free from irregular surface changes. All disturbed surfaces shall receive track equipment compaction and/or be compacted the same densities of adjacent in-situ materials. The method of compaction shall be submitted for approval in the construction plan required in paragraph 1.3.1 of this Section. The condition of the finished surfaces shall be such to ensure satisfactory placement of stone protection. Excavated materials meeting the requirements of satisfactory backfill specified in Section 02275, paragraph 2.3.2, may be used as fill where necessary, if not required or directed to be removed from the jobsite. All excavation and backfill needed to achieve a desirable surface shall be determined in the field by the Contracting Officer.

3.3 DISPOSAL

Disposal of the cleared, grubbed, and unsuitable organic soil material, or any other materials whether suitable or unsuitable, shall be the responsibility of the Contractor and in accordance with the site-specific environmental requirements of each task order. No material shall be disposed of within the project area, river or lake and the final disposition of materials shall be clearly described in an amendment to the Environmental Protection Plan, required in Section 01354, paragraph 1.5. Cleared and grubbed materials and unsuitable materials from excavations shall be carried offsite. Burning within the project area shall not be permitted, unless otherwise specified in the Task Order. All disposal of materials shall be in compliance with local, State,

and Federal regulations. The Contractor shall obtain the approval and acceptance of the Contracting Officer on the disposal location(s) proposed for use.

3.4 SEEDING FOR RESTORATION

Seeding shall be required in the areas disturbed and used for construction access and in the area above and adjacent to the constructed stone protection. It is the intent of these specifications that seeding, fertilizing, and mulching shall constitute continuous construction. As soon as disposal work is completed in an area and there is no danger of damage from continued operations, the area shall be stabilized and protected as specified herein. All areas to be seeded shall be graded to conform to the general contour of the adjacent surfaces immediately prior to seeding operations. Stones larger than 2 inches in diameter, roots, cables, wire, and other debris or material that might hinder subsequent maintenance shall be removed prior to seeding operations. Refer to paragraph 2.1.2, Permanent Seeding, and 2.1.3, Temporary Seeding, for information on seed mixtures.

3.4.1 Applying Fertilizer

Commercial fertilizer shall be evenly and uniformly distributed over the entire area. The rate of application shall be 400 pounds per acre. The fertilizer shall be worked into the soil to a depth of not less than 4 inches, or may be incorporated into the seeding operation.

3.4.2 Seeding

3.4.2.1 Permanent Seeding

Permanent Seeding shall not be performed between 01 January through 14 March and between 01 June through 31 December. Seeding may be postponed if current conditions indicate that satisfactory results are not likely to be obtained. Other than as stated above, seeding shall immediately follow seedbed preparation. No seeding shall be done in windy weather nor when the ground surface is frozen. Seed shall be sown by approved seeding method (suitable for planting prairie grasses) in a uniform manner at the rate specified. Seed shall be mixed to ensure broadcast at the rate of 20 pounds per acre.

3.4.2.2 Seeding Rate for Permanent Seeding

Permanent seeding rate shall be 20 pounds per acre.

3.4.2.3 Seed Mixtures for Permanent Seeding

Permanent seed mix shall be as set forth in Paragraph 2.1.2 of this section.

3.4.2.4 Temporary Seeding

Temporary seeding may be performed at any time during the year except during the period of 1 December to 1 February. In order to stabilize erodible areas with vegetation through the winter, the seeding must be performed no later than November 30. Any exposed erodible areas not

seeded by November 30 must be stabilized with straw mulch and protected with structural practices such as silt fencing, and staked straw bale check dams until such time as the site will be dry enough to permit seeding operations to resume in the Spring (after February 1). Working the soil surface to cover temporary seeding will not be required. The seeding operation may be combined with the fertilizing operation when hydraulic methods are used. Only rye grain or annual ryegrass seed shall be used for temporary seeding. Rye grain (*secale cereale*) shall be sown at the approximate rate of 80 pounds per acre during the period of September 1 to November 30. Annual ryegrass (*lolium multiflorum*) shall be sown at the approximate rate of 40 pounds per acre during the period February 1 through August 31. All areas temporarily seeded, shall receive permanent seeding in accordance with Paragraph 3.4.2.1 prior to project completion.

3.4.2.5 Surface Erosion Control Material Placement

Where indicated or as directed, surface erosion control blanket shall be installed in accordance with manufacturer's instructions. Placement of the material shall be accomplished without damage to installed material or without deviation to finished grade. Surface erosion control blanket shall be anchored in place according to manufacturers recommendations, or as approved by the Contracting Officer.

3.4.2.6 Seeding Protection

All seeding shall be protected with vegetative mulch no later than 48 hours after seeding. The mulch shall be placed uniformly over the entire seeded areas to a depth of two inches or approximately two tons per acre. Mulch shall be spread by blower-type mulch spreader, or other approved method.

3.5 ESTABLISHMENT AND MAINTENANCE

3.5.1 Establishment and Maintenance of Grass Areas

The Contractor shall be responsible for proper care of seeded areas while grass is becoming established. Seeded areas shall be maintained until all work or designated portions thereof have been completed and accepted. Where seeding is done after the acceptance of other work, the grass will be considered established and ready for acceptance when it reaches an average height of 4 inches over all seeded areas and has covered 95% of the seeded areas. After initial establishment, areas of failure shall be reseeded using the original seed mix and fertilized with 400 pounds of 10-20-20 per acre. Mulch material removed by wind or other causes shall be replaced. If any portion of the surface becomes eroded or otherwise damaged, the affected portion shall be repaired to reestablish condition, grade of soil, and treatment prior to the damage. This repair work shall be completed within 5 days after it occurs. Repair work required because of faulty operations or negligence on the part of the Contractor shall be performed without cost to the Government.

3.6 PROTECTION OF EXISTING FACILITIES

The Contractor shall take every precaution necessary to preserve all existing features within the specified Task Order setting and in the areas required for the delivery, stockpiling, staging, and

storage. Known existing facilities shall be depicted in the issued contract documents of the Task Order(s). The Contractor shall examine the pre-construction condition of all existing facilities and any subsequent damage to existing facilities caused by the Contractor shall be restored to pre-construction condition at no expense to the Government. There may be a significant number of existing facilities including utilities, overhead lines and poles, buried drainage pipes, culverts, headwalls, overlook areas, recreation facilities, pedestrian walkways, observation areas, etc. within each construction area. These items, if encountered, shall be depicted on the surveys required to be performed as specified in paragraph 3.2.1.1 of this Section. There are no utility relocations or any other relocations anticipated in this contract. If during excavation, a utility is encountered which is not depicted on the contract documents issued in the task order, the Contracting Officer shall be notified immediately and direction shall be provided by the Contracting Officer.

3.7 SLIDES

Should a movement or slide of material occur in any of the areas excavated which, in the opinion of the Contracting Officer, was not caused by the Contractor, the Contracting Officer may order in writing that such material be removed. Additional payment for such work shall be made at the applicable contract unit price for excavation in accordance with the CHANGES clause. Should a movement or slide occur in the areas excavated for permanent work, which, in the opinion of the Contracting Officer, was caused by carelessness on the part of the Contractor, the Contractor shall remove that material as directed by the Contracting Officer at no expense to the Government.

END OF SECTION 02112.

SECTION 02270
NONWOVEN GEOTEXTILE

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SECTION 02270

NONWOVEN GEOTEXTILE

PART I GENERAL

1.1 SCOPE

The work provided under this section consists of providing all plant, labor, equipment, material and performing all operations, required for the installation of nonwoven geotextile.

1.2 REFERENCES

The publications listed below form a part of these specifications to the extent referenced. The publications are referred to the text by designation only.

1.2.1 American Society for Testing and Materials (ASTM)

ASTM D 751	(1980) Coated Fabrics
ASTM D 1117	(1980) Nonwoven Fabrics
ASTM D 1683	(1990) Failure in Sewn Seams of Woven Fabrics
ASTM D 1777	(1964;R 1975) Measuring Thickness of Textile Materials
ASTM D 3776	(1985; R 1990) Mass Per Unit Area (Wt.) of Woven Fabric
ASTM D 3786	(1987) Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics.
ASTM D 4491	(1999) Water Permeability of Geotextiles by Permittivity
ASTM D 4632	(1991; R 1996) Grab Breaking Load and Elongation of Geotextiles

1.3 MEASUREMENT AND PAYMENT

For the purpose of payment, the installed geotextile shall be measured to the nearest square yard of protected area as delineated on the drawings. Payment shall be made at the contract unit price per square yard for "Geotextile." This payment will constitute full compensation to the contractor for providing all plant, labor, material, and equipment and performing all operations necessary for the complete and satisfactory installation of the geotextile. The following items are included in the

contract unit price for “Geotextile” and will not be counted a second time in the process of determining the extent of geotextile placed: Material and associated equipment and operation used in laps, seams, or extra length; securing pins and associated material, equipment, and operations; and material and associated equipment and operations used to provide cushioning layer of sand or gravel or both to permit increase in allowable drop height of stone. No measurement will be made for seams and overlaps, and for geotextile which is replaced because of contamination or damage due to the Contractor's fault or negligence. Grading of the surface to receive geotextile shall be considered incidental to the cost of geotextile placement and no separate payment shall be made.

PART 2 PRODUCTS

2.1 NONWOVEN GEOTEXTILE

2.1.1 General

The geotextile shall be a nonwoven pervious sheet of plastic yarn. The fibers shall consist of a long chain synthetic polymer composed of at least 85 percent by weight of polypropylene, ethylene, ester, amide, or (vinylidene-chloride), and shall contain stabilizers and/or inhibitors added to the base plastic if necessary to make the filaments resistant to deterioration due to ultra-violet and heat exposure. The edges of geotextile shall be finished to prevent the outer fiber from pulling away from the geotextile.

2.1.2 Seams

Seams of geotextile shall be sewn with the thread of a material meeting the chemical requirements given above for the geotextile yarn or shall be bonded by cementing or heat. The sheets of geotextile shall be attached at the factory or another location, if necessary, to form sections not less than 36 feet wide. Seams shall be tested in accordance with method ASTM D 1683, using 1-inch square jaws and 12 inches per minute constant rate of traverse. The strengths shall not be less than 90 percent of the required tensile strengths (Table 1) of the ungaged geotextile in any principal direction.

2.1.3 Acceptance Requirements

All brands of geotextile and all seams to be used shall be acceptable on the following basis. The Contractor shall furnish the Contracting Officer, in duplicate, a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the geotextile. The mill certificate or affidavit shall attest that the geotextile meets the chemical, physical and manufacturing requirements stated in this specification. Small samples of geotextile material (at least 12-inch x 12-inch squares), including seams, shall accompany the mill certificate. If requested by the Contracting Officer, the Contractor shall, also, provide the Government samples for testing to determine compliance with any or all of the requirements in this specification.

When testing samples are to be provided, they shall be submitted a minimum of 60 days prior to the beginning of installation of the same geotextile. Testing samples provided shall be the full manufactured width of the geotextile by at least 10 feet long, except that testing samples for seam strength may be a full width sample folded over and the edges stitched for a length of at least five feet. All samples submitted shall be identified by the manufacturer's lot designation.

PART 3 EXECUTION

3.1 INSTALLATION OF GEOTEXTILE

Nonwoven geotextile shall be placed in the manner specified and in the location shown on the contract documents. At the time of installation, geotextiles will be rejected if there are defects, rips, flaws, holes, deteriorated or damaged cloth incurred during manufacture, transportation, or storage. The surface to receive geotextile shall be prepared to a relatively smooth condition, free from obstruction or depressions, debris, soft or low density pockets of material. Erosion features such as rills, gullies, etc. must be graded out of the surface before geotextile placement. Geotextile shall be placed with the long dimension parallel with the direction of the slope and shall be laid smooth and free of tension, stress folds, wrinkles, or creases. The strips shall be placed to provide a minimum overlap of 12 inches at each joint. Temporary pinning of the textile to help hold it in place until the stone materials are placed will be allowed. The temporary pinning of the textile to hold it in place shall be removed as stone materials are placed to relieve high tensile stresses which may occur during placement of material on the geotextile. Placement procedures require that the length of the geotextile be approximately 15 percent greater than the slope length. The Contractor shall adjust the actual length of the geotextile in accordance with installation experiences. Geotextiles shall be protected at all times during construction from contamination by surface runoff and any geotextile so contaminated shall be removed and replaced with uncontaminated materials. Any damage to geotextiles during installation of stone materials shall be replaced with new materials by the Contractor at no additional cost to the Government. The work shall be scheduled so that the covering of the geotextile with stone materials is performed within 3 days after the placement of fabric. Geotextiles shall be protected from damage prior to and during the placement of stone materials. This can be accomplished by limiting the height of drop to less than one foot, by placing a cushioning layer of sand or gravel on top of the geotextile or other means deemed acceptable to the Contracting Officer. Before placement of stone, the Contractor shall demonstrate that the placement of stone technique will prevent damage to the geotextile. In no case shall any type of equipment be allowed to traffic on the unprotected geotextile without the approval of the Contracting Officer.

END OF SECTION 02270

**TABLE NO. 1 --- PHYSICAL STRENGTH REQUIREMENTS
NONWOVEN GEOTEXTILES**

Acceptable Physical Properties	Test Procedures	Test Results Typical Nonwoven Fabric Weights
Fabric Weight (oz/sy)	ASTM D3776	10
Thickness (mils)	ASTM D1777	150
Tensile Strength Ungaged Fabric	ASTM D4632 Using one inch Sq. Jaws	300-340 lbs (minimum)
Elongation (%)	ASTM D4632 Percent @ Ultimate Load	90-95
Burst strength	ASTM D3786	500 lbs
Trapezoidal Tear	ASTM D1117 Section 14	130 lbs
Puncture Strength	ASTM D751 Tension Testing Machine with Ring Clamp; steel ball replaced with a 5/16 inch diameter solid steel cylinder with a hemispherical tip centered	155 lbs
Permeability, k	ASTM D4491	0.35 cm/sec

SECTION 02275

RIPRAP / STONE

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SECTION 02275

RIPRAP / STONE

PART 1 GENERAL

1.1 SCOPE

This section covers the furnishing of all plant, equipment, labor, and materials for performing all operations in connection with the placement of riprap in accordance with these specifications and applicable drawings. All riprap shall be placed from the river and shall be bid as such utilizing a floating plant operation. Additional handling of riprap upon the riverbank shall be required in isolated areas where existing conditions prevent completion of the project from the river. Examples of such possible existing conditions include shallow shelves extending from the shoreline or riverbanks with long, gentle slopes. The Environmental Protection Section 01354 of these specifications has definitive instructions regarding the control of erosion and sedimentation into the river during construction. The Contractor shall be advised that strict compliance to those provisions shall be administered at all times during construction.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

1.2.1 Standard Specifications

1.2.1.1 Work in Tennessee, Kentucky, Alabama, and Mississippi

The materials, equipment, and workmanship shall be in accordance with each States' applicable portions for road and bridge construction manuals noted below. These State manuals are herein referred to as "Standard Specifications" except as otherwise specified. In the Standard Specifications changed the words as listed in the State publications to the following. Note, Kentucky changes are noted in parentheses.

State (for Kentucky only: Commonwealth)	to Government
Department (for Kentucky only: Cabinet)	to Corps of Engineers
Commissioner	to Contracting Officer
Engineer	to Contracting Officer

1.2.2 American Society of Testing Materials (ASTM)

ASTM C 294	Standard Description Nomenclature for Concrete Aggregates
ASTM D 422	Standard Test Method for Particle-Size Analysis of Soils
ASTM D698	Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/cu.ft)

ASTM D 1140	Amount of Material in Soils finer than the No. 200 (75-micrometer) Sieve
ASTM D 1556	Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 2487	(1998) Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 3740	(1996) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM D 4318	Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 4791	(1995) Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D 4992	(1994) Evaluation of Rock to be used for Erosion Control
ASTM D 5312	(1992) Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions
ASTM D 5313	(1992; R 1997) Evaluation of Durability of Rock for Erosion Control Under Wetting and Drying Conditions
ASTM D 5519	(1994) Particle Size Analysis of Natural and Man-Made Riprap Materials
ASTM E 548	(1994) General Criteria Used for Evaluating Laboratory Competence

1.2.3 Corps of Engineers (COE)

COE CRD-C 144	(1992) Resistance of Rock to Freezing and Thawing
COE CRD-C 148	(1969) Testing Stone for Expansive Breakdown on Soaking in Ethylene Glycol
COE CRD-C 169	(1993) Resistance of Rock to Wetting and Drying

1.2.4 Engineering Manuals (EM)

EM 1110-2-1906	(1986) Laboratory Soils Testing
EM 1110-2-1601	(1994) Hydraulic Design of Flood Control Channels (Change 1 ENG 4794-R)

1.2.5 National Institute of Standards and Technology (NIST)

NIST HB 44	(1997) NIST Handbook 44: Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices
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1.3 DEFINITIONS

This paragraph explains certain terminology which is common to construction of streambank stabilization work on the Tennessee and Cumberland Rivers and which may not be self-

explanatory in the subsequent applicable provisions of the Technical Specifications and on the Contract Drawings.

1.3.1 Stone Protection

Stone Protection is defined as a system by which a streambank is protected against erosion. It consists of a layer of bedding or filter material beneath a layer of riprap. Stone protection is used to protect a particular structure or a length of streambank and can be placed in the dry, in slack water, or within a dewatered site.

1.3.2 Riprap

Riprap is defined as a volume of stone material having a gradation band similar to those specified in EM 1110-2-1601, Chapter 3, Riprap Protection. Riprap is normally produced by mechanical methods such as a jaw crusher and grizzly after stone has been mined by blasting in a quarry. Riprap is also referred to herein as stone.

1.3.3 Chert

Chert is defined as a very fine grained siliceous rock characterized by hardness and conchoidal fracture in dense varieties, the fracture becoming splintery and the hardness decreasing in porous varieties, and in a variety of colors; it is composed of silica in the form of chalcedony, cryptocrystalline or microcrystalline quartz, or opal, or combinations of any of these. (Taken from American Concrete Institute document ACI 116R-90) Chert is further defined in paragraph 22 of ASTM C 294.

1.4 FIELD SURVEYS

1.4.1 Survey Requirements

All surveys shall be certified by a registered land surveyor of the applicable State. If one has not already been established, a fixed baseline along the top of the streambank to be protected shall be established. This baseline shall be parallel to the top of bank and shall be located slightly landward of the anticipated area of disturbance. It shall also be located such that cross-sections surveyed perpendicular to this baseline will also be perpendicular to the streambank. A sketch of this baseline shall be provided to the Contracting Officer along with horizontal coordinates at the endpoints and at all changes in alignment. These horizontal coordinates shall be in the UTM 16, NAD 83 coordinate system and shall be to the nearest foot with accuracy of +/- 0.5 foot. Cross-sections shall be surveyed perpendicular to the streambank and shall be no more than 100 feet apart, as measured along the top of bank or as determined appropriate by the Contracting Officer. Closer spacing or additional sections shall be used where needed to capture significant changes in ground conditions. Cross-sections shall extend from the baseline well past the anticipated or actual toe of riprap. The station at which the cross-section intersects the baseline shall be used to identify it. Data points along cross-sections shall be taken no more than five feet apart and shall include all breaks in grade along the section. Surveyed elevations shall reference the same datum used on the drawings and shall be to the nearest tenth of a foot with an accuracy of +/- 0.1

feet. Underwater elevations shall be obtained by sounding wherever practicable. Should sounding not be practicable, survey by fathometer will be allowed as long as it is GPS controlled. Additional elevations and/or soundings shall be taken if the Contracting Officer deems such to be necessary or advisable. The Contractor shall notify the Contracting Officer not less than three working days in advance of each survey. All surveys shall be conducted in the presence of the Contracting Officer or his designated representative unless this requirement is waived by the Contracting Officer.

1.4.2 Initial Surveys

Paragraph 3.2.1.1 of Contract Technical Specifications Section 02112 directs the Contractor to perform two initial surveys: one to define the original ground condition and one to assess the volume of excavation performed. These surveys shall also be used by the Contracting Officer to provide direction to the Contractor on the desired location for the stone protection, the desired finished slope of the stone protection, the location for the top of the stone protection slope, and any areas that may require stone protection thicker than the specified minimum thickness. The stone protection templates shown in the Contract Documents or in the Task Orders generally define the criteria that shall be used by the Contracting Officer to determine the extent of stone protection needed at each section. No stone placement shall be performed prior to the Contracting Officer making the determinations described above.

1.4.3 In-progress Surveys

The Contractor shall perform partial surveys as the work progresses to verify lines, grades and thickness established for completed work. Surveys made by the Contractor are required on each material placed to determine that the materials have been acceptably placed in the work. At least one in-progress survey shall be made by the Contractor as soon as practicable after completion of each 200-foot segment of stone placement or as determined appropriate by the Contracting Officer. Following placement of each type of material, the cross-section for each step of work shall be approved by the Contracting Officer before proceeding with the next step of work. Approval of cross-sections based upon in-progress surveys shall not constitute final acceptance of the work.

1.4.4 Final As-built Survey

A final as-built survey shall be performed after all riprap has been placed at the site and has been accepted by the Contracting Officer. The results of this survey will be used to check for any volume of riprap placed in excess of that required by the Contract Documents and the Contracting Officer.

1.4.5 Field Survey Submittals

The submittal of field survey results shall include a legible copy of all field notes and full, scaled plots of all data. This information shall be certified by the registered land surveyor in charge of the work.

1.5 PROTECTION OF EXISTING FACILITIES

The Contractor shall take every precaution necessary to protect the lives of individuals adjacent to and/or using the areas/facilities specified in the Task Order. The Contractor shall examine the pre-construction condition of all existing structures and their location when developing the Construction Work Plan required in Section 02112. Any subsequent damage to existing facilities caused by the Contractor shall be repaired and paid for by the Contractor. Damaged facilities shall be restored to a pre-construction condition. Photos sufficient to detail existing facilities within and adjacent to the work area shall be obtained before any construction begins. Digital photo files and a document depicting each of these photos, along with a detailed description of the photo and its file name, shall be provided to the Government. These pre-construction photos shall be used to determine repairs required in case of damage. The Contractor shall note the location of existing items such as all utilities including power poles/lines, walking tracks, telephone stands, picnic tables, ramps, piers, handrails, trees, etc. within and adjacent to the Task Order limits. Any coordination needed between the Contractor and local utilities shall be the responsibility of the Contractor performing the work.

1.6 RESERVOIR INFORMATION

Reservoir information will be included with each Task Order. It should be understood that although normal reservoir conditions are provided, the reservoir stage at the time of construction may be higher or lower than the normal elevation. The Contractor shall make a determination of the available depths of the reservoir for purposes of determining navigability for the floating plant and for timing the construction of the project.

1.7 SLIDES

In the event of the sliding or failure of any part of the structure during its construction, or after its completion, but prior to its acceptance, the Contractor shall, upon written order of the Contracting Officer, cut out and remove the slide from the structure and then rebuild that portion of the structure with new materials or reuse the displaced materials for rebuilding if deemed appropriate. The Contracting Officer shall determine the nature and cause of the slide and for any slide caused through fault of the Contractor, the foregoing operations shall be performed without cost to the Government.

1.8 MEASUREMENT AND PAYMENT

1.8.1 Riprap

1.8.1.1 Measurement of Riprap

Riprap shall be measured by the ton acceptably placed. This material shall be delivered in barges with the weight of each barge load determined by displacement. Not less than 10 days prior to unloading stone from any barge, the Contractor shall furnish to the Contracting Officer a barge displacement table. This table shall be certified accurate by a person or firm, other than the Contractor, accustomed to performing this service and approved by the Contracting Officer.

This certification must have been made not more than one year prior to the date of Notice to Proceed. Barge tables furnished shall contain, in parallel columns, the draft of the barge in yards and feet from zero to the full depth of the barge and corresponding gross displacement to the nearest cubic yard. Tables submitted shall show the name or number of the barge, the barge dimensions, the barge owner, the name of the manufacturer, and the certification of the person or firm preparing the table. Each barge on which riprap is furnished shall be suitably marked with paint of a contrasting color at each of five displacement gage points along each side of the barge. The marks shall be perpendicular to the edge of the barge, four inches wide and one yard in length, and shall be painted on both the deck and side at five equally spaced points beginning at the rake. The Government shall verify measurements before and after unloading. Payment shall be made at the contract unit price per ton for "Riprap," which price shall be full compensation for all equipment, labor, and materials for furnishing, hauling, and all necessary incidentals for placing riprap as specified. Existing stone placed in lieu of new stone from off-site sources is excluded from measurement and payment.

1.8.1.2 Stockpiled Riprap

Riprap placed in temporary storage on the worksite, as directed by the Contractor in the field, will not be required to be re-weighed as long as it is used on the subject job. Any riprap not used on the subject job shall be weighed by a means appropriate to the unused quantity and such weight shall be subtracted from the total quantity.

1.8.1.3 Excess Riprap

All riprap outside the limits and tolerances of the cross-sections of the stone protection, except variations so minor as not to be measurable, will be deducted from the quantity of new stone for which payment is to be made. The weight of excess riprap will be determined from the cross-sections obtained as described in Paragraph 1.4.5 with a volume-to-weight conversion being made on the basis that the one cubic yard of volume (including voids) of stone is equivalent to 1.5 tons of weight. Should any excess riprap be disclosed above the tolerance line, its volume will be computed by the average end area method based upon the cross-section surveys in the following manner. The average end area of excess riprap above the tolerance line for two successive cross-sections, multiplied by the distance between the cross-sections will be accepted as the volume. The Contractor will not be required to remove such excess riprap but deductions for the weights thereof will be made from contract payments for new stone. Determination of such excess volume quantities will be made by the Contracting Officer and, having once been made, will not reopen except on evidence of collusion, fraud, or obvious error. In addition to the above, riprap that has been delivered to the site and has been lost, wasted, or otherwise not properly incorporated into the final required work shall be deducted from the quantity for which payment is to be made.

1.8.1.4 Payment of Riprap

Payment shall be made at the contract unit price per ton for "Riprap", which price shall be full compensation, for all equipment, labor, and materials for furnishing, hauling and all necessary incidentals for placing riprap as specified.

1.8.2 Survey Work

No separate payment shall be made for field surveys including baseline surveys, initial surveys, in-progress surveys, and final as-built surveys. All costs associated with field surveys shall be considered incidental to the costs of excavation and quarry run stone..

1.9 SUBMITTALS

Government approval is required for all submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

Field Surveys – FIO

Pre-construction Photographs – FIO

Specific Weight and Gradation of Riprap – GA

PART 2 PRODUCTS

2.1 STONE MATERIALS

2.1.1 General

The right is reserved to reject materials from certain localized areas, zones, strata, or channels, when such materials are unsuitable as determined by the Contracting Officer. Materials produced from an approved source shall meet all the requirements of these specifications. All riprap for protection works shall be durable stone as approved by the Contracting Officer. The sources from which the Contractor proposes to obtain the material shall be selected well in advance of the time when the material will be required in the work. Approved sources of stone materials and approval of sources will be as directed and in Paragraph 2.2 below.

2.2 APPROVED RIPRAP SOURCES

2.2.1 Furnishing Riprap

Riprap may be furnished from any source approved by the applicable State and as noted herein. Additionally, the proposed sources shall be inspected by the Contracting Officer and shall be subject to his/her approval.

2.2.2 Designating Sources

After award of the contract, the Contractor shall designate in writing one or more sources of riprap to be used for stone protection. It is the responsibility of the Contractor and the Contractor’s quality control to determine that the stone sources selected are capable of providing

the quality, quantity, and gradation of riprap needed and at the rate required to maintain the scheduled progress of work. Sources shall be designated at least seven days prior to removing any material from the sources. If a source so designated by the Contractor is not approved by the Contracting Officer, the Contractor shall submit for approval another source within seven days of notice of disapproval at no additional expense to the Government. Material Testing shall be required if a source not approved by the applicable State is proposed to be used. Testing methodology shall be in accordance with the references made in Paragraph 1.2 and shall be at the expense of the Contractor. A geologist shall accompany the Contractor and material supplier to the source site and sampling shall be in accordance with the geologist and the Contracting Officer's direction.

2.2.3 Material from Approved Sources

Approval of a source is not to be construed as approval of all material from that source. It is the responsibility of the Contractor to ensure that all material obtained meets the requirements of these specifications.

2.3 RIPRAP FOR STONE PROTECTION

Riprap shall meet the requirements of the references provided in this section. It shall be durable and of suitable quality to ensure permanence in the environment in which it will be placed. It shall be free from cracks, seams, and other defects that would tend to unduly increase its deterioration due to natural causes. The inclusion of more than two percent of dirt, sand, clay, organic material, friable particles, and shale shall not be permitted. Chert content shall be limited to no more than 10 percent. No more than 10 percent of the stone shall be elongated such that its length or width is three or more times greater than the third dimension. For a specific weight of 155 pcf or greater, stone shall be well graded from a maximum size of 400 pounds to quarry fines as produced by normal processing of the stone. The average stone size in this gradation shall weigh about 95 pounds. No more than 15 percent of the stone by weight shall be less than 25 pounds. The Contractor shall submit documentation from each quarry specifying the specific weight and gradation of the stone proposed to be used for stone protection. This information shall be determined by a qualified person or company not in the direct employ of the Contractor and according to the methods specified by the references provided in this Section. This gradation shall be subject to Government approval. The Contracting Officer also reserves the right to reject individual units of stone in stockpiles at the quarry, at any transfer point, and at the project construction site (including in-place stone) when such materials are determined to be unsuitable. If during one of these inspection it is determined that the stone quality or gradation does not meet the requirements of these specifications, then the Contractor shall not use this stone. If unsuitable stone has already been installed at the project site, it shall be removed and properly disposed of at no expense to the Government. No payment shall be made for any stone that has been determined to be unsuitable by the Contracting Officer. . Based on long-term, satisfactory field performance as determined by the contracting officer, the requirement limiting the chert content to less than 10 percent may be waived. The names and locations of quarries meeting this criteria may be obtained from Tommy Haskins , who may be reached at 615.736.7901.

Riprap Gradation Table

% Finer by Weight					
365 lb.		95 lb.		25 lb.	
Max.	Min.	Max.	Min.	Max.	Min.
100	85	55	45	15	5

PART 3 EXECUTION

3.1 FOUNDATION PREPARATION

After excavation or stripping to the extent indicated on the drawings or as directed by the Contracting Officer, all remaining loose or otherwise unsuitable materials shall be removed. All depressions shall be carefully backfilled to grade. If pervious materials are encountered in the foundation depressions, the areas shall be backfilled with suitable materials from adjacent areas required by excavation, or other approved sources, and compacted to a density at least equal to that of the adjacent foundation. Any buried debris protruding from the foundation that will impede the proper installation and final appearance of the required work shall also be removed, and any voids carefully backfilled and compacted. All prepared foundation surfaces shall be inspected and approved by the Contracting Officer and no material shall be placed thereon until that area has been approved.

3.2 PLACEMENT OF RIPRAP

3.2.1 Use of Barges

The Contractor shall place riprap from a barge. The Contractor shall be responsible for adherence to all the provisions of Paragraph 3.1 for material placement. In addition, it shall be the Contractor's responsibility to ascertain that the depth of water at the site at the time of construction shall support placement of material by barge. In order to facilitate this determination, normal pool elevations will be provided to the Contractor as indicated in Paragraph 1.6.

3.2.2 Placement

Riprap shall be placed within the limits shown on the drawings, in such a manner as to produce a reasonably well-graded mass of stone with the minimum voids practicable, and shall be constructed to lines, grades, and thickness shown on the drawings or staked in the field. Placement shall begin at the bottom of the area to be covered and shall continue up the slope. Subsequent loads of material shall be placed against previously placed material in a manner that will ensure a relatively homogenous mass. No stone shall be dropped through the air from a height greater than three feet. When placed, a tolerance of plus six inches or minus three inches will be allowed in the finished surfaces of the stone protection, except that either extreme of such tolerances shall not be continuous over an area greater than 20 square yards. The larger stone shall be well distributed and the entire mass of stones shall be roughly graded to conform to the

requirements of Paragraph 2.3. The finished stone protection shall be free from objectionable pockets of small stones and clusters of larger stones. Placing stone in layers shall not be permitted. Placing stone by dumping into chutes or by similar methods likely to cause segregation of the various sizes shall not be permitted. No equipment shall be operated directly on the completed stone protection. The desired distribution of the various sizes of stone throughout the mass shall be obtained by selective loading of the material at the quarry or other source, by controlled dumping of successive loads during final placing, or by means of placement so as to produce the specified results. Rearranging of individual stones by mechanical equipment or by hand will be required to the extent necessary to obtain a reasonably well-graded distribution of stone sizes as specified above. The Contractor shall maintain the stone protection until accepted and any materials displaced by any cause shall be replaced at his expense to the lines and grades shown on the drawings.

3.3 RESTORATION OF THE LANDSCAPE

The Contractor shall be responsible for the restoration of the landscape that is damaged by the removal of construction access ways or other equipment damage. If additional topsoil is needed to return the existing ground to grade, it shall be considered incidental to the cost of installing and removing the access way. Reseeding, fertilizing and mulching shall be performed in accordance with the operations and regulations described in Section 02112 of these specifications.

END OF SECTION 02275